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1. Report of the Auditor General for the year ended 31st March, 1911. Volume 1, Parts A to P, and Vol. 2, Parts Q to Y. Presented 10th January, 1912, by Hon. Mr. White.

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2. Public Accounts of Canada, for the fiscal year ending 31st March, 1911. Presented by Hon. Mr. White, November 20, 1911.. ..*Printed for distribution and sessional papers.*

3. Estimates for fiscal year ended 31st March, 1911. Presented 29th November, 1911, by Hon. Mr. White.. .. ..*Printed for distribution and sessional papers.*

3*a*. Estimates for the fiscal year ending 31st March, 1913. Presented 10th January, 1912, by Hon. Mr. White.. .. ..*Printed for both distribution and sessional papers.*

3*b*. Supplementary Estimates for the fiscal year ending 31st March, 1912. Presented 13th March, 1912, by Hon. Mr. White..*Printed for both distribution and sessional papers.*

4. Supplementary Estimates for the fiscal year ending 31st March, 1913. Presented by Hon. Mr. White, 26th March, 1912.. .. ..*Printed for distribution and sessional papers.*

5. Further Supplementary Estimates for fiscal year ending 31st March, 1912. Presented by Hon. Mr. White, 26th March, 1912.

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6. List of Shareholders in the Chartered Banks of the Dominion of Canada for year ended 31st December, 1911. Presented by Hon. Mr. White.

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7. Report on dividends remaining unpaid, unclaimed balances and unpaid drafts and bills of exchange in Chartered Banks of the Dominion of Canada for five years and upwards prior to 31st December, 1911.

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8. Report of the Superintendent of Insurance for year ended, 1911. Presented by Hon. Mr. White, 20th November, 1911... .. .. ..*Printed for distribution and sessional papers.*

9. Abstract of Statements of Insurance Companies in Canada for the year ended 1911. Presented by Hon. Mr. White.. .. ..*Printed for distribution and sessional papers.*

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10. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1911. (Part I.—Canadian Trade). Presented by Hon. Mr. Foster, 23rd February, *Printed for distribution and sessional papers.*

10*a*. Report of the Department of Trade and Commerce for the year ended 31st March, 1911. (Part II.—Canadian Trade with (1) France, (2) Germany, (3) United Kingdom, and (4) United States). Presented by Hon. Mr. Foster, 10th January, 1912. *Printed for distribution and sessional papers.*

10*b*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1911. (Part III.—Canadian Trade). Presented by Hon. Mr. Foster, 25th March, 1912.. .. ..*Printed for distribution and sessional papers.*

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10*c*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1911. (Part IV.—Miscellaneous Information). Presented by Hon. Mr. Foster, 7th February, 1912.. .. ..*Printed for distribution and sessional papers.*

10*d*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1911. (Part V.—Grain Statistics, &c.) Presented by Hon. Mr. Foster. *Printed for distribution and sessional papers.*

10*e*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1911. (Part VI.—Subsidized Steamship Services). Presented by Hon. Mr. Foster, 1st April, 1912.. .. ..*Printed for distribution and sessional papers.*

10*f*. Report of Trade and Commerce for fiscal year ended 31st March, 1911. (Part VII.—Trade of Foreign Countries, Treaties and Conventions). Presented by Hon. Mr. Foster.. .. ..*Printed for distribution and sessional papers.*

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11. Report of the Department of Customs for the year ended 31st March, 1911. Presented by Hon. Mr. Roche, 10th January, 1912. *Printed for distribution and sessional papers.*

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12. Reports, Returns and Statistics of the Inland Revenue for the Dominion of Canada, for the year ended 31st March, 1911. (Excise, Part I). Presented by Hon. Mr. Nantel, 30th November, 1911.. .. ..*Printed for distribution and sessional papers.*

13. Report Department of Inland Revenue. (Part II.—Inspection of Weights and Measures, Gas and Electric Light). Presented by Hon. Mr. Nantel, 30th November, 1911. *Printed for distribution and sessional papers.*

14. Reports, Returns and Statistics of the Inland Revenues for the Dominion of Canada, for the year ended 31st March, 1911. Part III.—Adulteration of Food. Presented by Hon. Mr. Nantel, 11th January, 1912. *Printed for distribution and sessional papers.*

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15. Report of the Minister of Agriculture for the Dominion of Canada, for the year ended 31st March, 1911. Presented by Hon. Mr. Burrell, 1st December, 1911.
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15*a*. Report of the Dairy and Cold Storage Commissioner for the fiscal year ending 1911. Presented by Hon. Mr. Burrell... .. ..*Printed for distribution and sessional papers.*

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15*b*. Report of the Veterinary Director General and Live Stock Commissioner, J. G. Rutherford, for the year ending 1910. Presented by Hon. Mr. Burrell.
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15*c*. Report of the Veterinary Director General and Live Stock Commissioner for the year ending 31st March, 1911. Presented by Hon. Mr. Burrell, 1st December, 1911.
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16. Report of the Director and Officers of the Experimental Farms for year ending 31st March, 1911. Presented by Hon. Mr. Burrell, 1st December, 1911.
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17. Criminal Statistics for the year ended 1910. Presented by Hon. Mr. Doherty.
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18. Return of the Twelfth General Election for the House of Commons, 1911.
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18*a*. Return of By-Elections (Twelfth Parliament) for the House of Commons, 1911.
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19. Report of the Minister of Public Works, for the fiscal period ended 31st March, 1911. Presented by Hon. Mr. Monk, 1st December, 1911. Vols. I and II.
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20. Report of the Department of Railways and Canals for fiscal year, 1st April, 1910 to 31st March, 1911. Presented by Hon. Mr. Cochrane, 12th January, 1912.
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20*a*. Canal Statistics for season of navigation of 1911.
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20*b*. Railway Statistics of the Dominion of Canada for the year ended 30th June, 1911. Presented by Hon. Mr. Cochrane, 1st February, 1912.
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20*d*. Telephone Statistics of the Dominion of Canada, for the year ended 30th June, 1911. Presented by Hon. Mr. Cochrane, 8th March, 1912.
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20*e*. Express Statistics of the Dominion of Canada for the year ended 30th June, 1911. Presented by Hon. Mr. Cochrane, 8th March, 1912.
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21. Report of the Department of Marine and Fisheries, for the year ending 31st December, 1911. (Marine). Presented by Hon. Mr. Hazen, 22nd January, 1912.
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21*a*. Tenth Report of the Geographic Board of Canada, for year ending 30th June, 1911. Also Appendix Handbook of Indians of Canada.
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21b. List of Shipping issued by Department of Marine and Fisheries. Vessels in registry books of Canada, for year 1911. Presented by Hon. Mr. Hazen.
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22. Report of the Department of Marine and Fisheries, 1911. (Fisheries). Presented by Hon. Mr. Hazen, 12th January, 1912.
Printed for distribution and sessional papers.

23. Supplement to the Forty-fourth Annual Report of the Department of Marine and Fisheries for the year ending 31st December, 1910—Marine—Report of the Harbour Commissioners for Montreal, Quebec, &c. Presented by Hon. Mr. Hazen, 22nd January, 1912.. .. ..*Printed for distribution and sessional papers.*

23*a*. Report of the Chairman of the Board of Steamboat Inspection for the fiscal year 1911. Presented by Hon. Mr. Hazen, 22nd January, 1912.
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24. Report of the Postmaster General for the year ended 31st March, 1911. Presented by Hon. Mr. Pelletier, 24th November, 1911.
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25. Report of the Department of the Interior, for the fiscal year ending 31st March, 1911. Presented by Hon. Mr. Rogers, 12th January, 1912.
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25*a*. Report of Chief Astronomer, Department of the Interior, for year ending 31st March, 1911.. .. ..*Printed for distribution and sessional papers.*

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25*b*. Annual Report of the Topographical Surveys Branch, Department of the Interior, 1910-11.. .. ..*Printed for distribution and sessional papers.*

25*d*. Report of progress of stream measurements for the calendar year 1910.
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26. Summary Report of the Geological Survey Branch, Department of Mines, for calendar year 1911.. .. ..*Printed for distribution and sessional papers.*

26a. Summary Report of the Mines Branch Department of Mines, for the calendar year 1910. Presented by Hon. Mr. Nantel, 11th January, 1912.
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27. Report of the Department of Indian Affairs for the year ended 31st March, 1911. Presented by Hon. Mr. Rogers, 11th January, 1912.
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28. Report of the Northwest Mounted Police, for year 1911. Presented by Rt. Hon. Mr. Borden, 10th January, 1912... .. .. ..*Printed for distribution and sessional papers.*

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29. Report of the Secretary of State of Canada for year ended 31st March, 1911. Presented by Hon. Mr. Roche, 30th November, 1911
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29*b*. Report of the Secretary of State for External Affairs for the fiscal year ended 31st March, 1911. Presented by Hon. Mr. Roche, 11th January, 1912.
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30. Civil Service List of Canada, 1911. Presented by Hon. Mr. Roche, 30th March, 1912.
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31. Report of the Civil Service Commission of Canada for the period from 1st September to 31st August, 1911. Presented by Hon. Mr. Roche, 12th January, 1912.
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32. Annual Report of the Department of Public Printing and Stationery for the year ended 31st March, 1911. Presented by Hon. Mr. Roche, 6th March, 1912.
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33. Report of the Joint Librarians of Parliament for the year 1911. Presented by Hon. The Speaker, 16th November, 1911... .. ..*Printed for sessional papers.*

33*a*. Report of the Joint Committee Library of Parliament for year 1911. Presented by Hon. The Speaker, 18th March, 1912.. .. ..*Printed for sessional papers.*

34. Report of the Minister of Justice as to Penitentiaries in Canada for fiscal year ended 31st March, 1911. Presented by Hon. Mr. Doherty, 10th January, 1912.
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35. Report of the Militia Council for the fiscal year ending 31st March, 1911. Presented by Hon. Mr. Hughes, 8th February, 1912.
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36. Report of the Department of Labour for year ending 31st March, 1911. Presented by Hon. Mr. Crothers, 12th January, 1912.
Printed for distribution and sessional papers.

36*a*. Fourth Report of Proceedings under the Industrial Disputes Investigation Act, 1907. Presented by Hon. Mr. Crothers, 12th January, 1912.
Printed for distribution and sessional papers.

36*c*. Report of proceedings under the Combines Investigation Act, for the year ended 31st March, 1911. Presented by Hon. Mr. Crothers, 10th January, 1912.
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37. Report of the Transcontinental Railway Commission for year ending 31st March, 1911. Presented by Hon. Mr. Cochrane.. ..*Presented for distribution and sessional papers.*

38. Report of the Department of the Naval Service, for the fiscal year ending 31st March, 1911. Presented 10th January, 1912, by Hon. Mr. Hazen.
Printed for distribution and sessional papers.

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39. Statement of Governor General's Warrants issued since the last Session of Parliament on account of 1911-12. Presented 20th November, 1911, by Hon. Mr. White.
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40. Copy of Order in Council, dated 7th August, 1911, *re* "Extra Pay of Officers, and Men serving in the Naval Service of Canada."

Copy of Order in Council, dated 10th August, 1911, *re* "Payment to Ministers of Religion of various denominations for religious ministration to Officers and Men belonging to the Naval Foces of Canada."

Copy of Order in Council, dated 18th October, 1911, *re* "Regulations for the entry of Naval Cadets for the Naval Service."

Copy of Order in Council, dated 25th October, 1911, *re* "Regulations for Courts Martial." Presented 20th November, 1911, by Hon. Mr. Hazen.. .. .. ..*Not printed.*

40*a*. Copy of Order in Council, dated 7th August, 1911, *re* "Consolidated Allowance in lieu of Lodging, Provisions, Fuel, Light, &c., for the Naval Service of Canada." Presented 29th November, 1911 by Hon. Mr. Hazen.. .. ..*Not printed.*

40*b*. Copy of Order in Council, No. P.C. 2843, dated 16th December, 1911—"Regulations *re* Distinguishing Flag and Pendants to be flown by the Ships of the Royal Canadian Navy." Presented 1st January, 1912, by Hon. Mr. Hazen.. .. ..*Not printed.*

40*c*. Copy of Order in Council, dated 27th January, 1912, *re* Gratuities to Widows of Seamen, killed on duty. Presented 8th February, by Hon. Mr. Hazen..*Not printed.*

40*d*. Return to an Address to His Royal Highness the Governor General of the 29th November, 1911, for a copy of all Correspondence between His Majesty's Government in Canada and His Majesty's Government in England, subsequent to the last Imperial Conference, concerning the Naval Service of Canada, or in any way connected with it. Presented 15th February, 1912.—*Mr. Lemieux.*
Printed for distribution and sessional papers.

40*e*. Copy of Order in Council P.C., 16/168, dated 27th January, 1912, *re* Daily Rates of Pay and allowances for Bandsmen in the Royal Canadian Navy.—(*Senate*).
Not printed.

40*f*. Copy of Order in Council No. P.C. 186, 30th January, 1912, *re* transfer of certain Naval Reserve Lands by the Imperial Government to the Dominion Government and the reservation of the same for Naval and Military purposes.—(*Senate.*)..*Not printed.*

40*g*. Copy of Order in Council P.C., 16/168 dated 27th January, 1912, *re* Daily Rates of Pay and Allowances for Bandsmen in the Royal Canadian Navy. Presented 27 February, 1912, by Hon. Mr. Hazen.. .. ..*Not printed.*

40*h*. Copy of Order in Council No. P.C. 196, dated 30th January, 1912, *re* transfer of certain Naval Reserve Lands by the Imperial Government to the Dominion Government and the reservation of the same for Naval and Military purposes. Presented 27th February, 1912, by Hon. Mr. Hazen.. .. ..*Not printed.*

40*i*. Return to an Order of the House of the 5th February, 1912, for a copy of the memorandum of Admiral Kingsmill, dated 9th October, 1911, referred to by the Minister of Marine and Fisheries in answer to a question put to him on the 15th January, 1912. Presented, 11th March, 1912, by Hon. Mr. Hazen.. .. ..*Not printed.*

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41. Statement of Superannuation and Retiring Allowances in the Civil Service during the year ended 31st December, 1911, showing name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired; also, whether vacancy filled by promotion or by new appointment, and salary of any new appointee. Presented 20th November, 1911, by Hon. Mr. White.. .. ..*Not printed.*

42. Statement of Expenditure on account of "Miscellaneous Unforeseen Expenses," from the 1st April, 1911, to the 16th November, 1911, in accordance with the Appropriation Act of 1911. Presented 20th November, 1911, by Hon. Mr. White.. .. ..*Not printed.*

43. Civil Service Insurance Act. Statement concerning. Presented 20th November, 1912. *Not printed.*

44. Return, in pursuance of Section 16 of the Government Annuities Act, 1908, containing Statement of the business done during the fiscal year ending 31st March, 1911. Presented 21st November, 1911, by Hon. Mr. Foster.. .. ..*Not printed.*

44*a*. Return to an Order of the Senate, dated 8th February, showing:—1. The number of persons who have been appointed to the position of lecturers upon the subject of Annuities under chapter 5, 7-8 Edward VII, "An Act to authorize the issue of Government Annuities for Old Age and Amendments thereto." 2. The names of such lecturers, the amount of salary paid to each, of travelling expenses or payments for any other service rendered in connection therewith. 3. The number of clerks and others employed in connection with the organization and putting into force the provisions of the Annuities Act; and the salaries and wages paid to each one so employed. 4. The total expense incurred in the organization of Annuities Branch of the Public Service, to the end of December, 1911.—(*Senate*).. .. ..*Not printed.*

44*b*. Return to an Order of the Senate, dated 6th February, 1912, showing:—1. The number of annuitants and parties having made payments on account of purchase of same up to the 1st February, 1912. 2. The amount of money paid in to the same date. 3. The number of contracts for annuities entered into in each month from the 1st January, 1911, to the 1st February, 1912. 4. The number of letters received by the officials in charge of the Annuities Branch during same period?—(*The Senate.*).. ..*Not printed.*

45. Report of the proceedings for the preceding year of the Commisioners of Internal Economy of the House of Commons, pursuant to Rule 9. Presented 24th November, 1911, by Hon. The Speaker.. .. ..*Not printed.*

46. Copies of General Orders promulgated to the Militia for the period between 1st November, 1910, and 2nd November, 1911, inclusive. Presented 24th November, 1911, by Hon. Mr. Hughes.. .. ..*Not printed.*

47. Report of the Commission of Conservation on the Water-Powers of Canada. Presented 28th November, 1911, by Hon. Mr. Burrell.. .. ..*Not printed.*

48. Return respecting Trade Unions under Chap. 125, R.S.C., 1906. Presented 30th November, 1911, by Hon. Mr. Roche.. .. ..*Not printed.*

49. Detailed statement of all bonds or securities registered in the Department of the Secretary of State of Canada, since last return (29th November, 1910), submitted to the Parliament of Canada, under Section 32 of Chap. 19, R.S.C., 1906. Presented 30th November, 1911.—*Hon. Mr. Roche*.. .. ..*Not printed.*

50. Statement of Receipts and Expenditures of the National Battlefields Commission to 31st March, 1911. Presented 30th November, 1911.—*Hon. Mr. White.* *Printed for sessional papers.*

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51. Statements of Receipts and Expenditures of the Ottawa Improvement Commission to 31st March, 1911. Presented 30th November, 1911.—*Hon. Mr. White*... ..*Not printed.*

51*a*. Return respecting work done by Ottawa Improvement Commission for beautifying of Ottawa.—(*Sir Wilfrid Laurier.*) Presented 22nd February, 1912.
Printed for distribution and sessional papers.

51*b*. Report of the Ottawa Improvement Commission for the fiscal year ending 31st March, 1911. Presented by Hon. Mr. White, 18th March, 1912.. .. ..*Not printed.*

52. Statement of the affairs of the Royal Society of Canada, for the year ended 30th April, 1911. Presented 30th November, 1911.—*Hon. Mr. White*.. .. ..*Not printed.*

53. Regulations under "The Destructive Insect and Pest Act."—(*For distribution*). Presented 1st December, 1911.—*Hon. Mr. Burrell*
Printed for distribution and sessional papers.

54. Return of Orders in Council passed regulations and forms prescribed between the 1st October, 1910, and 30th September, 1911, in accordance with the provisions of Section 57 of the Irrigation Act, Chapter 61 Revised Statutes of Canada, 1906. Presented 1st December, 1911.—*Hon. Mr. Foster*.. .. ..*Not printed.*

55. Return of Orders in Council passed between the 1st of October, 1910, and the 31st July, 1911, in accordance with the provisions of Section 5 of the Dominion Lands Survey Act, Chapter 21, 7-8 Edward VII. Presented 1st December, 1911.—*Hon. Mr. Foster.*
Not printed.

55*a*. Return of Orders in Council which have been published in the *Canada Gazette*, between 1st October, 1910, and 31st July, 1911, in accordance with the provisions of Section 77 of the Dominion Lands Act, Chapter 20 of the Statutes of Canada, 1908. Presented 1st December, 1911.—*Hon. Mr. Foster*.. .. ..*Not printed.*

55*b*. Return of Orders in Council which have been published in the *Canada Gazette* and in the British Columbia *Gazette*, between 1st October, 1910, and 31st July, 1911, in accordance with provisions of Sub-section (*d*) of Section 38 of the regulations for the survey, administration, disposal and management of Dominion Lands within the 40-mile Railway Belt in the Province of British Columbia. Presented 1st December, 1911.—*Hon. Mr. Foster*.. .. ..*Not printed.*

55*c*. Supplementary Return of Certain Orders in Council in accordance with the provisions of Section 77 of the Dominion Lands Act, Chapter 20 of the Statutes of Canada, 1908.—(*Senate.*).. .. ..*Not printed.*

55*d*. Supplementary Return of Orders in Council which have been published in the *Canada Gazette*, between 1st August, 1911, and 15th November, 1911, in accordance with the provisions of Section 77 of the Dominion Lands Act, Chapter 20 of the Statutes of Canada, 1908. Presented 7th February, 1912.. .. ..*Not printed.*

56. Return of Orders in Council passed between the 1st October, 1910, and the 30th September, 1911, in accordance with the provisions of the Forest Reserve Act, Section 19, of Chapter 10, 1-2 George V. Presented 1st December, 1911.—*Hon. Mr. Foster.*
Not printed.

56*a*. Return of Orders in Council passed between the 1st October, 1910, and the 30th September, 1911, in accordance with the provisions of the Rocky Mountain Park Act, Section 5 of Chapter 60, Revised Statutes of Canada. Presented 1st December, 1911. —*Hon. Mr. Foster*.. .. ..*Not printed.*

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57. Return (in so far as the Department of the Interior is concerned) of Copies of all Orders in Council, plans, papers, and correspondence which are required to be presented to the House of Commons, under a Resolution passed on 20th February, 1882. since the date of the last return, under such Resolution. Presented 5th December, 1911.—*Hon. Mr. Rogers*.. .. ..*Not printed.*

58. Statement of Expenditure as bounty to deep-sea fishermen for the year 1910-11, pursuant to Chapter 46 of the Revised Statutes of Canada, 1906, intituled: "An Act to encourage the development of the Sea Fisheries and the building of Fishing Vessels." Presented 5th December, 1911.—*Hon. Mr. Hazen*.. .. ..*Not printed.*

59. Communication from the Right Honourable Baron Strathcona and Mount Royal, G.C.M.G., &c., on the subject of cheaper transmission of press cablegrams, &c.—(*Sessional papers*). Presented 7th December, 1911.—*Hon. Mr. Borden.*
Printed for sessional papers.

60. Report of the Commissioner, Dominion Police Force, for the year 1911. Presented 10th January, 1912.—*Hon. Mr. Doherty*.. .. ..*Not printed.*

61. Return to an Order of the House of the 27th February, 1911, showing all Statutes, regulations, reports and proceedings in the courts of the United States or in the counts of any of the respective States, and all other documents, papers and information of every kind touching or concerning the methods and operations of the meat trust and other trusts and combines in the United States, and touching the results both to the producer and to the consumer of such methods and operations, including all departmental proceedings and reports and other proceedings and reports of the Government of the United States or of any department thereof with respect to the matters aforesaid, and in general all available information in respect to the operations of such trusts and combines in the United States. Presented, 10th January, 1912.—*Mr. Meighen*... .. ..*Printed for sessional papers.*

62. Return to an Order of the House of the 29th November, 1911, for a copy of all papers, letters, telegrams, and other documents in connection with the acceptance of a tender of the McDiarmid Company, Limited, for the construction of the Moosejaw public building, and the cessation of all construction thereof. Presented 10th January, 1912.—*Mr. Knowles*.. .. ..*Not printed.*

62*a*. Return to an Order of the House of the 29th November, 1911, for a copy of all papers, telegrams, reports and other documents in connection with the proposed erection of a public building in the town of Aurora. Presented 10th January, 1912.—*Mr. Armstrong (York)*.. .. ..*Not printed.*

63. Return to an Order of the House of the 30th December, 1911, for a detailed statement of the expenses incurred and paid for the Exposition at Paris in 1900, under the title of payments of the Colonial Committee for space, &c., $87,000 (*See* report of the Auditor General, 1899,D—15). Presented 10th January, 1912.—*Mr. Paquet.*
Not printed.

64. Return to an Order of the House of the 6th December, 1911, showing the expenditure for printing pamphlets, circulars and literature with a view to promoting immigration to Canada during each of the years from and including 1900 to 1911; and the expenditure in the interests of each province for printing pamphlets, circulars and literature entirely devoted to each province during each of the years from and including the year 1900 to 1911; and also, whether the printing was done by contract or under what arrangement and the rate charged. Presented 10th January, 1912.—*Mr. Sutherland*.. .. ..*Not printed.*

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64a. Return to an Address to His Royal Highness the Governor General of the 30th November, 1911, for a copy of all Orders in Council and other papers relating to the appointment of Arthur Hawkes as a special commissioner in the immigration branch of the Interior Department. Presented 10th January, 1912.—*Mr. Oliver... .. ..Not printed.*

65. Certified copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 21st December, 1911, appointing Messieurs Alfred Bishop Morine, Guillaume Narcise Ducharme and Richard Stuart Lake, a Royal Commission to investigate and inquire into the operation of the various departments of the government, with a view to securing increased efficiency and a more thorough organization and co-ordination in the said departments. Presented 10th January, 1912.—*Rt. Hon. Mr. Borden.. .. ..Not printed.*

65. Certified copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 29th January, 1912, relative to the appointment of two commissioners, namely: Mr. F. C. Gutelius, C.E., of Montreal, and Mr. George Lynch Staunton, K.C., of Hamilton, to investigate all matters bearing on the actual construction of the National Transcontinental Railway between Moncton and Winnipeg. Presented 6th February, 1912.—*Hon. Mr. Cochrane.*
Not printed.

65b. Certified copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 12th February, 1912, appointing the Hon. Sir William Ralph Meredith, Chief Justice of the Common Pleas Division of the High Court of Justice of Ontario, a commissioner to inquire into all the circumstances connected with the organization, management, operation and failure of the Farmer's Bank of Canada. Presented 13th February, 1912.—*Hon. Mr. White.*
Not printed.

66. Return to an Order of the House of the 30th November, 1911, for a copy of all papers, telegrams, reports and other documents in connection with the interpretation and enforcement of the duties on lumber, together with a copy of all instructions or other communications addressed by circular or otherwise to Collectors of Customs, and a copy of any minute or minutes or rulings or decisions of the Board of Customs during the year 1911. Presented 10th January, 1912.—*Mr. Knowles... ..Not printed.*

67. Certified copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 21st November, 1911, providing for the transfer of the Government Annuities Branch from the Department of Trade and Commerce to the Post Office Department. Presented 10th January, 1912.—*Hon. Mr. Pelletier... .. ..Not printed.*

68. Return relating to lands sold by the Canadian Pacific Railway Company during the year which ended the 1st October, 1911. Presented 11th January, 1912.—*Hon. Mr. Rogers.. .. ..Not printed.*

68a. Return under the provisions of Section 8 of 49 Victoria, Chapter 9, being a list of lands in the "Irrigation Block" of the Canadian Pacific Railway Company in the province of Alberta, sold by that company during the year which ended on the 1st October, 1911. Presented 13th March, 1912.. .. ..*Not printed.*

68b. Return under the provisions of Section 8 of 49 Victoria, Chapter 9, being a list of lands in the province of Alberta, sold by the Canadian Pacific Railway Company during the year which ended on the 1st October, 1911. Presented 13th March, 1912.
Not printed.

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69. Return to an Order of the House of the 4th December, 1911, for a copy of all agreements between the Minister of Railways of Canada and any of the Brotherhood Unions or organizations of the employees of the Interclonial Railway since 1898. Presented 15th January, 1912.—*Mr. Maclean (Halifax)*.. .. ..*Not printed.*

70. Return to an Order of the House of the 29th November, 1911, showing:—1. What persons were appointed to positions in the several departments between the date of the dissolution of the last parliament and the 31st September last. 2. On whose recommendation such appointments were made, and the salary attached to each position. 3. What appointments were made in the several departments between the 21st day of September last and the date of the resignation of the Laurier Ministry, on whose recommendation in each case and the salary of each appointee. Presented 15th January, 1912.—*Mr. Edwards*.. .. ..*Not printed.*

70*a*. Return to an Order of the House of the 22nd January, 1912, for a Return showing how many appointments have been made in the Department of Public Works and Post Office since the 7th day of October, 1911, in the inside service, and in the outside service respectively. Presented 12th February, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

71. Return to an Address to His Royal Highness the Governor General of the 30th November, 1911, for a copy of all documents, &c., necessary to bring up to date the statement regarding the matters covered by Sessional Paper 109 of the Session of 1910-11 in reference to Canadian-Australain Trade.—*Mr. Ames.*
Printed for distribution and sessional papers.

71*a*. Return to an Order of the House of the 10th January, 1912, for a copy of all papers and correspondence relating to the negotiations that have been opened by the government for improved trade arrangements with the British West Indies and British Guiana. Presented 26th January, 1912.—*Mr. Murphy.*
Printed for distribution and sessional papers.

72. Return to an Address to His Royal Highness the Governor General of the 29th November, 1911, for a copy of all correspondence consisting of letters or telegrams, between the Salisbury and Harvey Railway Company or any officer thereof or any person, and the Minister of Railways or any other member of the government or any other person, and the Minister of Railways and Canals, relating to the re-opening of that portion of the railway of the said company between Hillsborough and Albert, and the supplying of rails and other materials for the purpose of repairing and improving the same, and also, of any Orders in Council, agreements and other documents relating thereto. Presented 15th January, 1912.—*Mr. Pugsley*.. .. .. ..*Not printed.*

72*a*. Return to an Address to His Royal Highness the Governor General of the 4th December, 1911, for a copy of all papers, correspondence and Orders in Council in connection with the awarding of the contract for the building of the Hudson Bay Railway, and of all orders suspending work on the same. Presented 15th January, 1912.—*Mr. Neely*.. .. ..*Not printed.*

72*b*. Return to an Order of the House of the 29th November, 1911, for a statement showing the amount of money paid by the Dominion Government to each of the railways in the provinces of Manitoba, Saskatchewan, Alberta, British Columbia and in the Northwest Territories by way of subsidies, and adding thereto the value of lands given as subsidies on the basis of one dollar per acre. Presented 15th January, 1912.—*Mr. McCraney*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

72c. Return to an Address to His Royal Highness the Governor General 30th November, 1911, for a copy of all Orders in Council, petitions, telegrams, letters, agreements, correspondence and all other documents generally in connection with the proposed branch line or lines of railway to connect Montreal with the National Transcontinental Railway. Presented 15th January, 1912.—*Mr. Lapointe (Montreal)*
Not printed.

72d. Return to an Address to His Royal Highness the Governor General of the 4th December, 1911, for a copy of all papers, correspondence and Orders in Council in connection with the awarding of the contract for the building of the Transcontinental Railway Station at Quebec, and all orders suspending work on the same. Presented 15th January, 1912.—*Sir Wilfrid Laurier*.. .. ..*Not printed.*

72e. Statement of work done on the National Transcontinental Railway—Eastern Division —to 31st December, 1911, and estimate of cost of completion. Presented 16th February, 1912—*Hon. Mr. Cochrane*.. .. ..*Not printed.*

72f. Return to an Order of the House of the 5th February, 1912, for a copy of all documents and of all the correspondence exchanged between A. E. Doucet, district engineer, on district B of the Transcontinental Railway, and of all other persons, relating to the selection of sites for railway stations in the parishes of St. Damien and St. Cajetan d'Armagh, in the county of Bellechasse. Presented, 18th March, 1912.—*Hon. Mr. Cochrane*.. .. ..*Not printed.*

72g. Return to an Address to His Royal Highness the Governor General of the 31st January, 1912, for a copy of all minutes of proceedings, records, orders, instructions or other writings made and had, or given or authorized to be made, had or given by the Board of National Transcontinental Railway Commissioners, from the date of the appointment of Mr. R. W. Leonard, as a member of the said Board and chairman thereof, to the present date; also of all letters, telegrams, instructions or other documents made or had or passed, since the said appointment, by and between the Minister of Railways and Canals, or other members of the government, or by any person by authority of the government, and the said Chairman of the Board of National Transcontinental Railway Commissioners, or the Secretary of said Board; also of any Orders in Council relating to the appointment of an asistant chairman or an assistant to the chairman of said Board, together with a copy of all letters, papers, instructions or documents relating thereto; as well as a statement of all payments of monies in the way of salaries or compensation made to the incumbent of the office of assistant chairman or assistant to the chairman of said Board, and of all papers, letters or instructions made, written or received by the said minister or the said chairman, relating to or in any way connected with the payment or authorization of said salary or compensation. Presented 20th March, 1912.—*Hon. Mr. Cochrane.*
Not printed.

72h. Interim Report of the Commissioners of the Transcontinental Railway, being for the nine months ended 31st December, 1911. Presented 22nd March, 1912, by Hon. Mr. Cochrane.. .. ..*Not printed.*

73. Return to an Order of the House of Commons of the 29th November, 1911 (so far as the Department of Agriculture is concerned), for a copy of all letters, telegrams, memorials, résolutions and other documents in the hands of the government, or any department thereof, in connection with the taking of the census in the city of Regina, and all complaints and protests in connection with the same; also, all departmental instructions, memoranda, reports and other documents. Presented 15th January, 1912.—*Mr. Knowles*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

74. Return showing:—1. The number of messengers in the House of Commons during the last session of the last parliament. 2. The names of the said messengers and the dates of their respective appointments. 3. The number of these messengers who have been relieved from service, their names, at whose request, for what reasons and on what date. 4. By whom have they been replaced. 5. Where are the residences of the new messengers and by whom were they recommended. 6. How many French Canadians hve been dismissed nd by whom have they been replaced. Presented 17th January, 1912.—*Hon. Mr. Speaker*.. .. ..*Not printed.*

75. Ordinances of the Yukon Territory passed by the Yukon Council in the year 1911. Presented 17th January, 1912, by Hon. Mr. Roche.. .. ..*Not printed.*

76. Return to an Address to His Royal Highness the Governor General of the 4th December, 1911, for a copy of all correspondence with and from the Secretary of State for the Colonies, or other minister of the Imperial government, in relation to the passage of legislation providing for uniformity in naturalization throughout the empire since the sittings of the Imperial Conference in June last. Presented 19th January, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

77. Return to an Address to His Royal Highness the Governor General of the 7th December, 1910, for a copy of the Report of the Imperial Defence Committee of the Privy Council in England concerning the defence of the empire, communicated to the Canadian Government, and of the despatches and correspondence exchanged between the Imperial and the Canadian Governments relating to the said report. Presented 22nd January, 1912.—*Hon. Mr. Monk*.. .. ..*Not printed.*

78. Return called for by Section 88 of Chapter 62, R.S.C., requiring that the Minister of the Interior shall lay before parliament, each year, a Return of liquor brought from any place out of Canada into the Territories, by special permission in writing of the Commissioner of the Northwest Territories. Presented 22nd January, 1912.—*Hon. Mr. Rogers*.. .. ..*Not printed.*

79. Return to an Order of the House of the 17th January, 1912, for a copy of all letters, resolutions, telegrams and other communications or memorials in connection with the removal from the Moosejaw Land Office, of John Rutherford, lands agent, and the appointment (either temporary or permanent) of a new incumbent of the office. Presented 23rd January, 1912.—*Mr. Knowles*.. .. ..*Not printed.*

79*a*. Return to an Order of the House of the 15th January, 1912, for a copy of all letters, telegrams, reports, papers and correspondence, petitions or memoranda presented to the Government, or the Department of Public Works, or any official thereof, in connection with the dismissal of Captain Peter Decoste from the dredge *Cape Breton*. Presented 26th January, 1912.—*Mr. Chisholm (Antigonish)*.. .. ..*Not printed.*

79*b*. Return to an Order of the House of the 17th January, 1912, for a copy of all petitions, letters, telegrams and other documents in the possession of the Department of Public Works relating to the dismissal of Roderick Sutherland, caretaker of the public building at Canso, Nova Scotia. Presented 26th January, 1912.—*Mr. Sinclair.*
Not printed.

79*c*. Return to an Order of the House of the 17th January, 1912, for a copy of all letters, reports or other documents, relating to the removal from office of Mr. Eugene Baldwin, late of the Customs Service at Coaticook, Quebec. Presented 30th January, 1912.—*Mr. McLean (Halifax)*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*d*. Return to an Order of the House of the 5th February, 1912, for a copy of all documents, letters, petitions, reports, recommendations, declarations, proceedings of inquiry and all other documents relating to the dismissal of Medric Picotte as messenger of the House of Commons and the appointment of his successor, Henry Coffin. Presented 7th February, 1912.—*Mr. Seguin*.. .. ..*Not printed.*

79*e*. Return to an Address to His Royal Highness the Governor General of the 5th February, 1912, for a copy of all letters, complaints, charges, telegrams, petitions, memorials, Orders in Council or other documents in the possession or under control of the government, relating to the dismissal of William A. Hattie, from the position of Preventive Officer at Mulgrave, Nova Scotia, and relating to the appointment of a man to fill the vacancy caused by such dismissal. Presented 12th February, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*f*. Return to an Order of the House of the 31st January, 1912, for a copy of all letters, complaints, telegrams, evidence, reports, or other papers, relating to charges against Robert Leithead, James Blair, Duncan Gillis and Calvin McKenzie, all employees of the Intercolonial Railway in the county of Pictou, for partizanship and to the investigation of said charges. Presented 14th February, 1912.—*Mr. Macdonald*..*Not printed.*

79*g*. Return to an Order of the House of the 24th January, for a copy of all letters, telegrams and all other documents, and of all complaints and charges, in any way relating to the suspension of Joseph Venoit, checker on the Intercolonial Railway at Pictou, Nova Scotia. Presented 14th February, 1912.—*Mr. Macdonald*...*Not printed.*

79*h*. Return to an Order of the House of the 7th February, 1912, for a copy of all charges, letters, and other documents relating to complaints against John Connolly, of New Glasgow, coal inspector, for partizanship, the evidence taken in the investigation before H. P. Duchemin, and all other papers in connection therewith. Presented 14th February, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

79*i*. Return to an Order of the House of the 5th February, 1912, for a copy of all letters, telegrams, petitions, complaints, charges or other documents in the possession of the Department of Customs relating to the dismissal of S. M. Ferguson, Preventive Officer at Oyster Ponds, county of Guysborough, Nova Scotia, and relating to an appointment of a man to fill the vacancy cause by such dismissal. Presented 19th February, 1912. —*Mr. Sinclair*.. .. ..*Not printed.*

79*j*. Return to an Order of the House of the 22nd January, 1912, for a copy of all correspondence, letters, telegrams or other documents relating to the dismissal of P. J. Veniot, Collector of Custotms at Bathurst, New Brunswick, and the appointment either permanent or temporary of his successor. Presented 19th February, 1912.—*Mr. Turgeon*.. .. ..*Not printed.*

79*k*. Return to an Order of the House of the 12th February, 1912, for a copy of all letters, telegrams, petitions, charges, complaints, reports and other documents relating to the dismissal of Luke Day, (of the Department of Public Works), of North Sydney, Cape Breton. Presented 19th February, 1912.—*Mr. McKenzie*.. .. .. ..*Not printed.*

79*l*. Return to an Order of the House of the 5th February, 1912, for a copy of all correspondence addressed to the Minister of Public Works in connection with the dismissal of George T. Harbour, superintendent of the work at the deep water wharf at Gaspé. Presented 22nd February, 1912.—*Mr. Lemieux*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*m*. Return to an Order of the House of the 12th February, 1912, for a copy of all letters, telegrams, petitions, charges, complaints, reports and other documents relating to the dismissal of D. McDonald, Esquire, M.D. (of the Department of Indian Affairs), of Baddeck, Cape Breton. Presented 26th February, 1912.—*Mr. McKenzie*..*Not printed.*

79*n*. Return to an Order of the House of the 19th February, 1912, for a copy of all correspondence, petitions, requests, complaints, or other documents in the possession of the government, or any department thereof, relating to the dismissal of George Cavanagh from the Customs Service at New Glasgow, Nova Scotia. Presented 27th February, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

79*o*. Return to an Order of the House of the 14th February, 1912, for a copy of all charges, letters and documents of every kind with respect to the dismissal of John W. Bohan from the position of Preventive Customs Officer at Bath, in the county of Carleton, province of New Brunswick; also, a copy of all references for an investigation on any charges, if any, and a copy of all evidence adduced thereat, together with the recommendation of the official making such investigations. Presented 27th February, 1912.—*Mr. Carvell*.. .. ..*Not printed.*

79*p*. Return to an Order of the House of the 19th February, 1912, for a copy of all papers, letters, documents, &c., relating to the dismissal of Hector Hamel, assistant appraiser at the Montreal Custom House; and also, relating to his subsequent appointment as preventive officer. Presented 27th February, 1912.—*Mr. Lemieux*. *Not printed.*

79*q*. Return to an Address to His Royal Highness the Governor General of the 12th February, 1912, for a copy of all letters, telegrams, petitions, charges, complaints, Orders in Council, reports or other documents in the possession of the Department of Customs relating to the dismissal of Lyman C. Smith from the Customs Collectorship at Oshawa, Ontario. Presented 27th February, 1912.—*Mr. Sinclair*.. .. .. ..*Not printed.*

79*r*. Return to an Order of the House of the 5th February, 1912, for a copy of the petitions forwarded to the Minister of Public Works praying for the dismissal of Michael Campeau, and the appointment of Honoré Paquette, as caretaker of the Postal Station in Laurier Ward, Montreal. Presented 1st March, 1912.—*Mr. Lemieux*.. ..*Not printed.*

79*s*. Return to an Order of the House of the 19th February, 1912, for a copy of all documents, letters, telegrams, requests, reports, recommendations and correspondence, regarding the removal or dismissal of Alexander R. McAdam, Fishery Officer for the county of Antigonish, and the appointment of a successor to him Presented 4th March, 1912.—*Mr. Chisholm (Antigonish)*.. .. ..*Not printed.*

79*t*. Return to an Order of the House of the 14th February, 1912, for a copy of all letters, correspondence, petitions, recommendations, complaints and other documents in the possession of the Department of Marine and Fisheries, relating to the dismissal of Fishery Guardians in the county of Guysborough, Nova Scotia. Presented 4th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*u*. Return to an Order of the House of the 19th February, 1912, for a copy of all correspondence, petitions, complaints, charges, or other documents in the possession of the Department of Marine and Fisheries, relating to the dismissal of Edward Kelly from the position of engineer at the Reduction Works at Canso, Nova Scotia. Presented 4th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*v*. Return to an Order of the House of the 19th February, 1912, for a copy of all correspondence, petitions, complaints, charges or other documents in the possession of the Marine and Fisheries Department relating to the dismissal of David S. Hendsbee from the position of weigher at the Reduction Works at Canso, Nova Scotia. Presented 4th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*w*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports, recommendations and evidence taken under investigation by Dr. Shurtleff, relating to the dismissal of Anson Sheltus, of St. Armand Station, county of Missisquoi, a Preventive Officer of the Customs Department. Presented 5th March, 1912.—*Mr. Kay*.. .. ..*Not printed.*

79*x*. Return to an Order of the Senate dated the 30th January, 1912, calling for copies of all letters, papers or other documents in the hands of the government relating to the proposed removal of John Park, postmaster at Orangeville, Ontario.—(*Senate.*)

79*y*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports, telegrams, recommendation and memoranda relating to the dismissal of James McPhee as Customs Officer at West Bay, Nova Scotia, and the appointment of a successor. Presented 6th March, 1912.—*Mr. Chisholm (Inverness)*.. .. ..*Not printed.*

79*z*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports, recommendations and memoranda relating to the dismissal of Allan Kennedy as General Government Telegraph Repairer, Inverness county, and the appointment of his successor. Presented 7th March, 1912.—*Mr. Chisholm (Inverness)*.. .. ..*Not printed.*

79*aa*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports and recommendations relating to the dismissal of Wenceslas Lebel, of Kamouraska, as preventive officer of the Customs Department. Presented 12th March, 1912.—*Mr. Lapointe (Kamouraska)*.. .. ..*Not printed.*

79*bb*. Return to an Order of the House of the 4th March, 1912, for a copy of all letters, complaints, charges and other documents connected with or giving any information as to the discharge of Thomas Hale, of Westville, Nova Scotia, as correspondent for the *Labour Gazette*. Presented 12th March, 1912.—*Mr. Macdonald*.. ..*Not printed.*

79*cc*. Return to an Order of the House of the 14th February, 1912, for a copy of all letters, petitions, charges, complaints and other documents in the possession of the government or any department thereof, relating to the dismissal of William A. Gerrior, customs preventive officer at Larry's River, N.S., and to the appointment of his successor. Presented 22nd March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

77*dd*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports and recommendations relating to the dismissal of Auguste Hibert as postmaster at St. Pascal, county of Kamouraska. Presented 19th March, 1912.—*Mr. Lapointe (Kamouraska)*.. .. ..*Not printed.*

79*ee*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports and recommendations relating to the dismissal of Luc Lizotte as postmaster at St. Pacome, county of Kamouraska. Presented 19th March, 1912.—*Mr. Lapointe (Kamouraska)*.. .. ..*Not printed.*

79*ff*. Return to an Order of the House of the 19th February, 1912, for a copy of all correspondence, petitions, complaints or other dcuments in the possession of the Post Office Department, relating to the dismissal of Captain Alex. Roberts, postmaster at Canso, N.S., and the appointment of his successor. Presented 19th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*gg*. Return to an Order of the House of the 12th February, 1912, for a copy of all documents, reports, letters, complaints, &c., relating to the dismissal in 1896, of H. St. Amour, postmaster at St. Amour, county of Prescott, and the appointment of his successor. Presented 19th March, 1912.—*Mr. Proulx*.. .. ..*Not printed.*

79*hh*. Return to an Order of the House of the 7th February, 1912, for a copy of all letters, telegrams, petitions, complaints or other documents relating to the dismissal of W. H. Harris, postmaster, at White Head, N.S., and relating to the appointment of his successor. Presented 19th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*ii*. Return to an Order of the House of the 7th February, 1912, for a copy of all letters, telegrams, petitions, charges, complaints, reports and other documents in the possession of the Post Office Department relating to the proposed dismissal of James McGrath, postmaster at Aspen, Nova Scotia. Presented 19th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*jj*. Return to an Order of the House of the 7th February, 1912, for a copy of all documents, papers, petitions, letters, &c., relating to the dismissal of Louis Girard, postmaster at Ste. Anglèle de Mêrici, county of Rimouski, and relating to the appointment of his successor. Presented 19th March, 1912.—*Mr. Lapointe (Kamouraska)*. *Not printed.*

79*kk*. Return to an Order of the House of the 22nd January, 1912, for a copy of all letters, reports or other documents relating to the removal from office on 1st May, 1903, of John Fraser, postmaster of Stellarton, Nova Scotia. Presented 19th March, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

79*ll*. Return to an Address to His Royal Highness the Governor General of the 17th January, 1912, for a copy of all petitions, requests, letters, recommendations, Orders in Council or other papers or documents in the possession or under the control of the Honourable the Postmaster General or the Post Office Department, relating to the dismissal of John M. Rogers, postmaster at East Roman Valley, N.S. Presented 19th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*mm*. Return to an Order of the House of the 5th February, 1912, for a copy of all correspondence and papers in connection with the appointment and subsequent dismissal of Eugene Guimond, as postmaster at St. Angele, county of Rimouski. Presented 20th March, 1912.—*Mr. Lemieux*.. .. ..*Not printed.*

79*nn*. Return to an Order of the House of the 28th February, 1912, for a copy of all charges made against Dougald R. Boyle, officer at West Arichat, Nova Scotia, and of all correspondence and telegrams between the Department of Marine and Fisheries or any official thereof and any other person in relation thereto. Presented 21st March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

79*oo*. Return to an Order of the House of the 28th February, 1912, for a copy of all charges made against Dr. J. R. McLeod, port physician at Port Hawkesbury, N.S., the evidence taken before H. P. Duchemin in support of such charges, and his report on the same, and of all correspondence and telegrams between the said H. P. Duchemin and the Department of Marine and Fisheries or any official thereof in relation thereto. Presented 21st March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

79*pp*. Return to an Order of the House of the 4th March, 1912, for a copy of all documents, correspondence, inquiries, accusations, petitions and reports in the Department of Railways and Canals, referring to the dismissal of Mr. Theophile Morice, an officer over the delivery of the coal of the Intercolonial Railway at Rivière du Loup. Presented 21st March, 1912.—*Mr. Gauvreau*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*qq*. Return to an Order of the House of the 24th January, 1912, for a copy of all letters, requests, petitions, telegrams, complaints or charges received by the Post Office Department since 10th October, 1911, relating to the postmaster at Glenelg, N.S. Presented 22nd March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*rr*. Return to an Order of the House of the 18th March, 1912, for a copy of all letters, telegrams, complaints and other documents, relating to charges against Jas. W. Matheson, I.C.R. trackman at Meadowville, Pictou county, N.S., of the evidence taken and other proceedings of the investigation held on said charges, the reports thereon and of all representations in regard to the case from the Brotherhood of Trackmen. Presented 22nd March, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

79*ss*. Return to an Order of the House of the 26th February, 1912, for a copy of all letters, petitions, reports, charges or other documents in the possession of the Post Office Department relating to the dismissal of J.D. McFarlane, postmaster at Southwest Margaree, Nova Scotia, and the appointment of his successor. Presented 22nd March, 1912.—*Mr. Chisholm (Inverness)*.. .. ..*Not printed.*

79*tt*. Return to an Order of the House of the 4th March, 1912, for a copy of all papers and correspondence in connection with the removal of the postmaster at Rathburn, township of Mara, county of Ontario, and the change of the location of the post office at said point. Presented 22nd March, 1911.—*Mr. Pardee*.. .. ..*Not printed.*

79*uu*. Return to an Order of the House of the 6th March, 1912, for a copy of all papers, complaints, letters and other documents connected with or relating to the dismissal of John McLeod as postmaster at Denmark, Colchester county, N.S., and the appointment or suggested appointment of D. McLeod to the vacancy. Presented 22nd March, 1912—*Mr. Macdonald*.. .. ..*Not printed.*

79*vv*. Return to an Order of the House of the 28th February, 1912, for a copy of all documents, letters, requests, reports and recommendations in the possession of the Post Office Department, relating to the dismissal of Doué Daoust, postmaster at Alfred, county of Prescott, and the appointment of his successor. Presented 22nd March, 1912.—*Mr. Proulx*.. .. ..*Not printed.*

79*ww*. Return to an Order of the House of the 5th February, 1912, for a copy of all documents, papers, inquiries, letters, &c., relating to the dismissal of Thomas Dionne, as postmaster of Cacouna, also the dismissal of Miss Saindon, of Cacouna, and the reinstallation of the said Thomas Dionne in the post office at Cacouna. Presented 22nd March, 1912.—*Mr. Gauvreau*.. .. ..*Not printed.*

79*xx*. Return to an Order of the House of the 7th February, 1912, for a copy of all documents, papers, petitions, recommendations, &c., relating to the request that was made to the Post Office Department for the dismissal of the postmaster at St. Anaclet, county of Rimouski. Presented 22nd March, 1912.—*Mr. Lapointe (Kamouraska)*.. .. ..*Not printed.*

79*yy*. Return to an Order of the House of the 13th March, 1912, for a copy of all letters, papers, documents, memoranda, telegrams and correspondence relating to the resignation of Donald E. McLean, late postmaster at Inverness, N.S. Presented 25th March, 1912.—*Mr. Chisholm (Inverness)*.. .. ..*Not printed.*

79*zz*. Return to an Order of the House of the 26th February, 1912, for a Return showing the number of postmasters removed from office in Shefford county since the 1st October, 1911; their names, post office addresses, dates of dismissal, reasons therefor, name of complainant in each case, names of new postmaster appointed to replace them;

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the charges laid against the dismissed postmasters, and whether charges were investigated before their removal from office; dates of different investigations, by whom held and was the accused postmaster present at said investigations in each case; names of any other postmasters in said county who may have charges laid against them; their names, offices, names of complainants in each case and nature of the complaints; will charges be investigated before the accused postmasters are removed from office; application made for these offices and name of applicant in each case. Presented 25th March, 1912.—*Mr. Boivin*.. .. ..*Not printed.*

79*aaa*. Return to an Order of the House of the 11th March, 1912, for a copy of all charges against Arthur Brymer, fishery officer at L'Ardoise, N.S., and of all telegrams and other communications between the Minister of Marine and Fisheries, or any other officer of his department, and any other persons having reference to the same and in relation to the appointment of his successor. Presented 25th March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

79*bbb*. Return to an Order of the House of the 11th March, 1912, for a copy of all charges against Lawrence G. Power, Superintendent of the Lobster Hatchery at Arichat, N.S., and of all letters, telegrams and other communications between the Minister of Marine and Fisheries or any officer in his department, and any other person, having reference to the same and in relation to the appointment of his successor. Presented 25th March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

79*ccc*. Return to an Order of the House of the 13th March, 1912, for a copy of all papers, corrspondence, telegrams, &c., concerning the dismissal of Joachim Godbout, lighthouse keeper at St. Laurent, Isle of Orleans, county of Montmorency. Presented 25th March, 1912.—*Mr. Lemieux*.. .. ..*Not printed.*

79*ddd*. Return to an Order of the House of the 22nd January, 1912, for a copy of all papers and other documents concerning the proposed investigation against P. L. St. Pierre, postmaster at St. Paul d'Abbottsford, county of Rouville, Que. Presented 27th March, 1912.—*Mr. Lemieux*.. .. ..*Not printed.*

79*eee*. Return to an Order of the House of the 11th March, 1912, for a copy of all letters, requests, complaints, depositions, reports of inquiry and of every other document in the possession of the Post Office Department relating to the dismissal of Doctor H. Dupre as postmaster of St. Robert, county of Richelieu, and to the appointment of a new postmaster. Presented 27th March, 1912.—*Mr. Cardin*.. .. ..*Not printed.*

79*fff*. Return to an Order of the House of the 22nd January, 1912, for a tabulated statement showing the number of dismissals in the Post Office Department since the first day of October, 1911, in the nine provinces of the Dominion. Also, the names of the postmasters so dismissed, the locality, the cause of dismissal, the names of the petitioners praying for such dismissal in each case, and the names of the petitioners opposing said dismissals. Presented 27th March, 1912.—*Mr. Lemieux*...*Not printed.*

79*ggg*. Return to an Order of the House of the 11th March, 1912, for a copy of all letters, requests, complaints, depositions, reports of inquiry, and of every other document in the possession of the Post Office Department relating to the dismissal of Madam, the widow of Antoine St. Martin, as postmistress at St. Louis de Bonsecours, county of Richelieu, and to the appointment of a new postmaster. Presented 27th March, 1912.—*Mr. Cardin*.. .. ..*Not printed.*

79*hhh*. Return to an Order of the House of the 24th January, 1912, for a copy of all correspondence, documents, recommendations and reports respecting the dismissal of Joseph Moreau, as postmaster at St. Germain, Kamouraska, in the year 1905. Presented 27th March, 1912.—*Mr. Lapointe*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*iii*. Return to an Order of the House of the 20th March, 1912, for a copy of all papers, telegrams, letters, petitions and affidavits, relating to the dismissal of George Bourgoin, employed as statistician on the Lachine canal, also of all letters exchanged between the Minister of Public Works and the Minister of Railways and Canals concerning said dismissal. Presented 28th March, 1912.—*Mr. Lemieux*.. ..*Not printed.*

79*jjj*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports and recommendations relating to the dismissal of Louis Dechesne, an employee of the Marine Department, on the river Ouelle wharf, county of Kamouraska. Presented 29th March, 1912.—*Mr. Lapointe*.. ..*Not printed.*

79*kkk*. Return to an Order of the House of the 18th March, 1912, for a copy of all charges against A. M. Hatfield, fishery overseer of the county of Yarmouth, N.S., and of all letters, telegrams, and any other communications between the Minister of Marine and Fisheries or any officer of his department, and any other person, having reference to the same, in relation to the appointment of Mr. Hatfield's successor. Presented 30th March, 1912.—*Mr. Law*.. .. ..*Not printed.*

79*lll*. Return to an Order of the House of the 11th March, 1912, for a copy of all letters, requests, complaints, depositions, reports of inquiry and every other document whatsoever, relating to the dismissal of Mr. J. O. Dauphinais as postmaster of Sorel, county of Richelieu, and also of all letters, requests or other documents relating to the appointment of the new postmaster at Sorel. Presented 30th March, 1912.—*Mr. Cardin*.. .. ..*Not printed.*

79*mmm*. Return to an Order of the House of the 11th March, 1912, for a copy of all documents, letters, papers, requests, inquiries and reports respecting the dismissal of Mr. Joseph Cloutier, postmaster of St. Adolphe de Dudswell. Presented 30th March, 1912. —*Mr. Tobin*.. .. ..*Not printed.*

80. Return to an Order of the House of the 17th January, 1912, showing:—1. The quantity in tons of anthracite dust and Culm coal imported into Montreal during the year 1911. 2. The quantities of the same imported into other ports of the province of Quebec during the year 1911. 3. The duty collected on this product, if any, under the ruling of the Customs Department; the rate of duty and amount collected. 4. The value of said product as imported and entered at Montreal and the other ports. 5. The quantity in tons and the value of bituminous slack coal imported during the year 1911 into the port of Montreal and the various other ports, respectively, in the province of Quebec, and the duty collected thereon. Presented 25th January, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

81. Return to an Order of the House of the 15th January, 1912, showing the quantities, the different kinds as far as practicable, and prices of all boots and shoes imported into Canada during each of the fiscal years ending respectively 31st March, 1908, 1909 and 1910, together with the several countries from which the same were imported, giving the quantities, &c., from each country for each year. Presented 2nd February, 1912.—*Mr. Carvell*.. .. ..*Not printed.*

82. Return to an Address to His Royal Highness the Governor General of the 24th January, 1912, for a copy of all the correspondence between the Prime Minister of Canada, or any member of the Government, and Messieurs Fielding and Paterson, during the time the latter gentlemen were in Washington last year, on the subject of the negotiations for a Reciprocity Treaty between Canada and the United States. Presented 2nd February, 1912—*Mr. Bradbury*.. .. ..*Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 24—*Continued.*

82*a*. Return to an Address to His Royal Highness the Governor General of the 24th January, 1912, for a copy of all correspondence from the 1st day of January, 1910, to the 1st October, 1911, between the Right Honourable James Bryce, British Ambassador at Washington, and the Government of Canada, or any member thereof with reference to the negotiations for Reciprocity Treaty between Canada and the United States. Presented February, 1912.—*Mr. Bradbury.*

Printed for distribution and sessional papers.

83. Return to an Address to His Royal Highness the Governor General of the 31st January, 1912, for a copy of the letters patent relating to the office of Governor General of Canada, of the Commission issued to the present Governor General, and of the instructions accompanying the same. Presented 2nd February, 1912.—*Mr. Macdonald.*

Printed for sessional papers.

84. Return to an Address to His Royal Highness the Governor General of the 22nd January, 1912, for a copy of the treaty between Great Britain, the United States and Russia for the suspension of pelagic sealing, and all correspondence regarding the same from the initial negotiations to the present day. Presented 5th February, 1912. —*Sir Wilfrid Laurier*.. .. ..*Printed for sessional papers.*

85. Return to an Order of the House of the 22nd January, 1912, showing whether the government or the Montreal Harbour Commission purchased any cement for its different works, from the 1st January, 1905, to the 21st September, 1911; if so, from whom purchased; the price paid, and were tenders called for before purchasing. Presented 5th February, 1912.—*Mr. Boulay*.. .. ..*Not printed*

86. Copy Fifth Report of the Commission for the Demarcation of the Meridian of the 141st Degree of West Longitude.—(*Senate*).. .. ..*Printed for sessional papers.*

87. Return to an order of the House of the 22nd January, 1912, showing:—1. How many farm labourers and domestic servants have been placed by each employment agent in Eastern Canada, or whom a commission has been paid, during each of the years 1907, 1908, 1909, 1910, 1911, and up to date in the month of January, 1912. 2. The total amount of commission paid to each of such agents in each of the years mentioned, and the counties and provinces in which they are located. Presented 5th February, 1912.—*Mr. Sutherland*.. .. ..*ot printed.*

88. Return to an Order of the House of the 22nd January, 1912, showing how many homestead inspectors were employed in the province of Saskatchewan by the Department of the Interior on 1st October, 1911, and what were their names; names of any of these inspectors who have been dismissed from office; reasons for dismissal; names of persons appointed to the positions so vacanted, giving their previous occupations, respectively. Presented 8th February, 1912.—*Mr. Thompson*.. .. ..*Not printed.*

89. Return to an Order of the House of the 22nd January, 1912, for a copy of all papers, letters, telegrams and other documents relative to prosecutions under the Fishery Act against John McCabe, David Porter, Joseph Foster and Duncan Murray, in the county of Pictou; and also, relating to a suit of Porter *vs.* Murray in the County Court of District No. 5, Nova Scotia, and the connection of the department with the same. Presented 9th February, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

90. Copy P.C. 19/168 certified extract from the minutes of a meeting of the Treasury Board, held on the 22nd January, 1912, approved by His Royal Highness the Governor General in Council on the 27th January, 1912.—(*Senate*)... .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

91. Return to an Address to His Royal Highness the Governor General on the 5th February, 1912, for a copy of all papers, letters, Orders in Council and other documents respecting the superannuation of the Honourable Judges Sir Alexandre Lacoste, J. A. Ouimet and C. J. Doherty. Presented 9th February, 1912.—*Mr. Ethier.*
Not printed.

92. Return showing certain dates returned to Senate by Messrs. A. E. Forget, &c.—(*Senate*).
Not printed.

93. Return to an Order of the House of the 22nd January, 1912, for a copy of all letters, correspondence, reports or other documents relating to the erection of an armoury at the town of Sarnia, Ontario. Presented 13th February, 1912.—*Mr. Pardee.*
Not printed.

94. Return to an Address to His Royal Highness the Governor General of the 22nd January, 1912, for a copy of all correspondence between the Government of Canada and the Government of the province of Quebec, with regard to the extension of the boundaries of the said province. Presented 13th February, 1912.—*Sir Wilfrid Laurier.*
Printed for distribution and sessional papers.

95. Return to an Order of the House of the 29th January, 1912, for a copy of all correspondence, representations, estimates, letters, telegrams and other documents received by the Right Honourable Prime Minister, or by any member of the Government, in any way relating to the subject of a car ferry service between the province of Prince Edward Island and the mainland, across the Straits of Northumberland, and the widening of the gauge of the Prince Edward Island Railway; and also, as to the estimated cost of all such work. Presented 13th February, 1912.—*Mr. Emmerson.*
Not printed.

95*a*. Supplementary Return to an Order of the House, of the 29th January, 1912, for a copy of all correspondence, representations, estimates, letters, telegrams and other documents received by the Right Honourable Prime Minister, or by any member of the Government, in any way relating to the subject of a car ferry service between the province of Prince Edward Island and the mainland, across the Straits of Northumberland, and the widening of the gauge of the Prince Edward Island Railway and also as to the estimated cost of all such work. Presented 7th March, 1912.—*Mr. Emmerson*.. .. ..*Not printed.*

95*b*. Return to an Order of the House of the 5th February, 1912, for a copy of all letters, telegrams, or other documents containing applications or requests for the establishment of a car ferry service between Prince Edward Island and the mainland and of all correspondence, telegrams, reports, survey, and other documents showing the cost of the same, and of widening the gauge of the Prince Edward Island Railway; together with all other information available as to the desirability or necessity of said projects. Presented 7th March, 1912.—*Mr. Pardee*.. .. ..*Not printed.*

96. Return to an Order of the House of the 17th January, 1912, for a copy of all correspondence between the Department of Railways and Canals, or any official thereof, and the Saint John Railway Company, or the municipality of the city and county of St. John, on the subject of the granting of permission to the Saint John Railway Company, to lay its rails across the track of the Intercolonial Railway at or near the Haymarket Square in the city of St. John. Presented 13th February, 1912.—*Mr. Pugsley*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

96*a*. Supplementary Return to an Order of the House of the 17th January, 1912, for a copy of all correspondence between the Department of Railways and Canals, or any official thereof, and the Saint John Railway Company, or the municipality of the city and county of St. John, on the subject of the granting of permission to the Saint John Railway Company, to lay its rails across the track of the Intercolonial Railway at or near the Haymarket Square in the city of St. John, New Brunswick. Presented 14th February, 1912.—*Mr. Pugsley*.. .. ..*Not printed.*

97. Return to an Order of the House of the 17th January, 1912, for a copy of all papers, reports, correspondence and messages respecting a report made in 1904 by H. Boulay of Sayabec, against William Roy, sectionman at Amqui, Intercolonial Railway, and of all that has been subsequently done to give effect to that report. Presented 14th February, 1912.—*Mr. Boulay*.. .. ..*Not printed.*

97*a*. Return to an Order of the House of the 7th February, 1912, for a copy of all letters, papers, charges, affidavits and other documents relating to a charge against W. W. Gray, coal inspector of the Intercolonial Railway at Westville, Nova Scotia, and of all evidence, documents, reports, or other papers connected with the investigation of said charge by H. P. Duchemin. Presented 14th February, 1912.—*Mr. Macdonald.* *Not printed.*

98. Return to an Order of the House of the 17th January, 1912, for a copy of all papers, letters, recommendations, ministerial instructions, and any other document, from the Department of Customs relating to a temporary change in the customs tariffs upon the twine used in the headings of lobster traps. Presented 15th February, 1912.—*Mr. McLean*.. .. ..*Not printed.*

99. Return to an Order of the House of the 5th February, 1912, for a copy of all papers, memorials, resolutions and letters received from boards of trade, officials or individuals during the years 1908, 1909, 1910, 1911, 1912, respecting the location of a quarantine or inspecting station on Lawlor's Island, Halifax harbour, accompanied by a chart. Presented 16th February, 1912.—*Mr. McLean*.. .. ..*Not printed.*

100. Return to an Address to His Royal Highness the Governor General of the 5th February, 1912, for a copy of all papers, correspondence and Orders in Council, relating to or in any way connected with the surveying and calling for tenders for the construction of the line of railway from Estmere to Baddeck, in the county of Victoria. Presented 16th February, 1912.—*Mr. McKenzie*.. .. ..*Not printed.*

100*a*. Return to an Address to His Royal Highness the Governor General of the 22nd January, 1912, for a copy of all papers, correspondence, and other Orders in Council in connection with the calling for tenders for the construction of the proposed branch line of railway from Estmere to Baddeck, in the county of Victoria, or bearing upon the reason why none of all said tenders were not accepted. Presented 16th February, 1912.—*Mr. McLean*.. .. ..*Not printed.*

100*b*. Return to an Order of the House of the 4th March, 1912, for a copy of all letters, contracts, memoranda, or notice cancelling contracts, and of all other papers and documents in the possession of the Department of Railways and Canals, bearing date after 1st January, 1911, relating to the construction of certain branch lines of the Intercolonial Railway between Sunny Bræ and Guysborough and Country Harbour, and between Dartmouth and Dean Settlement, in the province of Nova Scotia. Presented 21st March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

101. Return to an Address to His Royal Highness the Governor General of the 15th January, 1912, for a copy of Orders in Council and all correspondence between the Government and the Winnipeg and Hudson's Bay Railway Company and its successor the Winnipeg Great Northern Railway, relative to the proposed route of said Railway to Hudson's Bay, with all accompanying plans and reports; also a copy of all correspondence relative to the offer of Milburn and Company, Steamship owners, of England, said to have been made to the Government through the said Railway Company to place a line of their steamships on the route between Hudson's Bay and England on the completion of said Railway, and the further offer by the said Milburn and Company to place one of their Baltic steamships at the disposal of the Government for the purpose of making a practical test of the navigability of the route for commercial purposes. Presented 16th February, 1912. —*Mr. Aikins.*
Not printed.

101*a*. Return to an Order of the House of the 26th February, 1912, for a copy of all reports, surveys, plans and maps made or prepared during the year 1911 or this year, in respect of or in connection with the Hudson Bay Railway or the suggested ports at Nelson or Churchill on the Hudson Bay, or relating to the navigation of the Hudson straits. Presented 4th March, 1912.—*Mr. Aikens.*
Printed for distribution and sessional papers.

102. Return to an Order of the House of the 5th February, 1912, for a copy of the inquiry made by the Railway Department respecting the accident incurred by Goffrey Bourque, of Lac au Saumon, in the yard of the Intercolonial Railway at Campbellton, in the month of November or December, 1911; also, for all papers and correspondence exchanged since on this subject. Presented 16th February, 1912.—*Mr. Boulay.*
Not printed.

103. Return to an Order of the House of the 14th February, 1912, for a copy of all correspondence, letters, telegrams, &c., between the King's Printer, the Superintendent of Printing, and the King's Printers' Representatives in Winnipeg, regarding the printing and distribution of the Voters' Lists of the province of Manitoba at the last general elections. Presented 19th February, 1912.—*Mr. Staples*.. .. ..*Not printed.*

104. Return to an Order of the House of the 17th January, 1912, for a copy of the Report of the Board of Engineers appointed for the reconstruction of the Quebec bridge, and of the plans and specifications prepared by them; of all notices calling for tenders; of all tenders received; of the report of the Board on the same, collectively or individually, to the Minister of Railways; of the report of the said minister for the acceptance of tenders, and any Orders in Council awarding contracts for the building of the said bridge. Presented 19th February, 1912.—*Sir Wilfrid Laurier.*
Printed for sessional papers.

105. Return to an Address to His Royal Highness the Governor General of the 12th February, 1912, for a copy of all Orders in Council passed during the last ten years relating to the abolition or regulation of tolls on canals. Presented 19th February, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

106. Return to an Order of the House of the 12th February, 1912, for a copy of all petitions, letters and memorials received by the Minister of Marine and Fisheries since the first day of October, 1911, protesting against the issuing of a fish-trap license to Captain John T. Thorburn, Sand Point, county of Shelburne, Nova Scotia. Presented 22nd February, 1912.—*Mr. Law*.. .. ..*Not printed.*

106*a*. Return to an Order of the Senate, dated 22nd March, 1912, for the production of all petitions and correspondence in relation to the removal of a fish trap at or near McNutts Island, in the harbour of Shelburne.—(*Senate*)... .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

107. Return to an Order of the Senate, dated 15th February, 1912, showing the names, position and pay of all persons appointed to the Intercolonial Railway service in the city of St. John, New Brunswick, from 1st September, 1907, to 1st March, 1911.—(*Senate*). *Not printed.*

108. Certified copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 22nd February, 1912, referring certain questions to the Supreme Court of Canada in respect to Bill No. 3, of the First Session of the Twelfth Parliament of Canada, intituled: "An Act to amend the Marriage Act." Presented 23ar February, 1912.—*Hon. Mr. Doherty..Printed for sesional papers.*

108*a*. Return to an Order of the House of the 19th February, 1912, for a copy of all letters, petitions, memorials or other documents received by the Prime Minister or any other member of the government, relating to the passage of a federal marriage law or legislation in regard to the so-called effect of the Ne Temere Decree. Presented 25th March, 1912.—*Mr. Macdonald.. .. ..Printed for sessional papers.*

109. Return to an Order of the House of the 17th January, 1912, for a copy of all papers, letters, recommendations, petitions, ministerial instructions and other documents in the possession of the Department of Marine and Fisheries relating to the price from 31st March, 1911, of Dog Fish scrap. Presented 23rd February, 1912.—*Mr. Sinclair. Not printed.*

110. Return to an Address of His Royal Highness the Governor General of the 5th February, 1912, for a copy of all correspondence, memorials or communications of any kind between the government of the province of Ontario and the Dominion Government since 1st January, 1908, respecting the extension of the boundaries of the province of Manitoba or the division of the Territory of Keewatin. Presented 23rd February, 1912... .. ..*Not printed.*

110*a*. Return to an Address to His Royal Highness the Governor General of the 4th December, 1911, for a copy of all papers, letters, telegrams, memoranda or correspondence of any kind had between the Dominion Government and the governments of Manitoba and Saskatchewan, or with the Government of Ontario, as to the settlement of the boundaries of said respective provinces; and also, of any agreement or memo. containing any terms of settlement of the questions relating to the boundaries of said provinces or any part thereof; and also, of any documents, letters or representations made to the Federal Government by any person or persons relative to said settlement or the questions involved therein. Presented 26th February, 1912.—*Mr. Macdonald. Printed for sessional papers.*

110*b*. Return to an Address of His Royal Highness the Governor General of the 5th February, 1912, for a copy of all correspondence, memorials or communications of any kind between the Government of the province of Ontario and the Dominion Government since 1st January, 1908, respecting the extension of the boundaries of the province of Manitoba or the division of the territory of Keewatin. Presented 26th February, 1912.—*Mr. Meighen.. .. ..Printed for sessional papers.*

111. Return to an Address of the Senate, dated 24th January, 1912, for copies of the contracts betweetn the Government of Canada, and the various steamship companies for the carriage of the mails between England, France and Canada, and all the correspondence relating thereto since the first of January, 1909; also, the agreements, if any, for the carriage of mails via New York. Further, any contracts, subsidy agreements, &c., for the conveyance of mail between Canada and Newfoundland, and the correspondence relating thereto since the first of January, 1909.—(*Senate*). *Printed for sessional papers.*

CONTENTS OF VOLUME 24—*Continued.*

112. Memorandum of the Chief Architect to the Deputy Minister of the Department of Public Works relative to the "Forbes Sterilizers" in use in the House of Commons and several departments. Presented 26th February, 1912.. .. ..*Not printed.*

113. Return to an Order of the House of the 5th February, 1912, for a copy of all reports, correspondence and papers relating to the building of the Saint John Valley Railway from Saint John to Grand Falls, New Brunswick. Presented 27th February, 1912.—*Mr. Michaud*.. .. ..*Not printed.*

114. Return to an Order of the House of the 14th February, 1912, for a copy of all documents, papers, correspondence, inquiries, evidences, reports, &c., relating to an accident sustained by Alphonse Madore, employed on the Intercolonial at Ste. Flavie, in 1888 or 1889, and to the settling of the claim then made by the said Alphonse Madore to the Department of Railways and Canals. Presented 27th February, 1912.—*Mr. Lapointe (Kamouraska)*... .. ..*Not printed.*

114*a*. Return to an Order of the House of the 4th March, 1912, for a copy of all inquiries, correspondence whatsoever relating to the death of the late Absolon Lavoie, of Amqui, accidentally killed on the Intercolonial Railway at Metis, county of Rimouski, during the summer of 1911. Presented 18th March, 1912.—*Mr. Boulay*..*Not printed.*

114*b*. Return to an Order of the House of the 4th March, 1912, for a copy of all papers, documents, letters, &c., connected with an inquiry made by the Intercolonial authorities on the loss of a horse killed on the Dalhousie branch, belonging to Mr. Xavier St. Laurent, of Causapscal since 1905. Presented 26th March, 1912.—*Mr. Lapointe (Kamouraska)*.. .. ..*Not printed.*

115. Return to an Order of the House of the 31st January, 1912, for a copy of all papers, statements, letters, telegrams, statement of claim and application, minutes of the evidence taken on any investigation held, with all reports thereon, and all other documents in any way relating to a claim of Earl Ash, for damages caused by and resulting from the destruction by fire of property owned, occupied and passessed by the claimant, alleged to have been caused by fire and sparks from a locomotive of the Intercolonial Railway of Canada, and operated by said railway. Presented 27th February, 1912.—*Mr. Emmerson*.. .. ..*Not printed.*

115*a*. Return to an Order of the House of the 26th February, 1912, for a copy of all letters, evidence taken under investigation by Superintendent Sharp, reports and other documents connected with a claim for damages occasioned by fire to the property of Angus J. McAulay, of Tracadie, Prince Edward Island, on the 16th day of July, 1911. Presented 1st March, 1912—*Mr. Macdonald*.. .. ..*Not printed.*

116. Return to an Order of the House of the 26th February, 1912, for a copy of all papers, documents, &c., concerning the incorporation and operations of the Fidelity Trust Company of Montreal. Presented 28th March, 1912.—*Mr. McKenzie*.....*Not printed.*

117. Return to an Order of the Senate, dated the 31st January, 1912, for copies of Acts, documents, correspondence, &c., concerning the expropriation of the properties of F. Turgeon and F. Gunn, in the city of Quebec for the purpose of a Central station.—(*Senate*).. .. ..*Not printed.*

118. Return to an Order of the House of the 26th February, 1912, for a copy of all papers and correspondence relating to the incorporation and operations of The Provident Trust Company, of Montreal. Presented 1st March, 1912.—*Mr. Lemieux.*

Not printed.

CONTENTS OF VOLUME 24—*Continued.*

119. Return to an Address to His Royal Highness the Governor General of the 10th January, 1912, for a copy of all Orders or Minutes of Council relating to the appointment of commissioners under the treaty with the United States relating to boundary waters, and questions arising along the boundary between Canada and the United States, signed at Wshington, 11th January, 1909; together with a copy of all despatches, letters and telegrams between the Governor General, or the Government of Canada, or any member thereof, and the British ambassador at Washington, or the British Government, or any member thereof, upon that subject; and also, of all letters and telegrams between any member or department of the government and Sir George Gibbons, Mr. Aimé Geoffrion and Mr. Alexander Barnhill, or either of them, relating to their appointment as such commissioners. Presented 1st March, 1912.—*Mr. Pugsley*.. .. ..*Printed for sessional papers.*

120. Return to an Address to His Royal Highness the Governor General of the 29th November, 1911, for a copy of all correspondence since the first of July, 1896, to the present date, between the Government of Canada and the governments of the several provinces on the subject of assistance to provincial railways and other provincial public works. Presented 1st March, 1912.—*Sir Wilfrid Laurier*..*Printed for sessional papers.*

121. Return to an Order of the House of the 26th February, 1912, for a copy of all papers and documents in the case of Rex *vs.* Sheldon and others. Presented 5th March, 1912.—*Mr. McKenzie*.. .. ..*Not printed.*

122. Return to an order of the House of the 26th February, 1912, for a copy of all papers, correspondence and documents in connection with the case of D. Raymond, petitioner, the Queen's Hotel Company, Limited, respondent, and Guillaume Narcisse Ducharme and others, party defendants. Presented 5th March, 1912.—*Mr. Lemieux.*
Not printed.

123. Return to an Order of the Senate dated 9th February, 1912, showing the terms of lease to the whaling company or companies for whale fishing on the coast of British Columbia, giving the extent of sea over which exclusive rights are given, rent paid, and restriction as to close season, and all other particulars relating to this subject.—(*Senate*).. .. ..*Not printed.*

123*a*. Return to an Address of the Senate dated 9th February, 1912, for a return showing the term of lease by the government to a company giving rights to exclusive fishing in the fresh water lakes of the Dominion; with all conditions as to time, rent, subletting and close season, and any other information relating to this subject.—(*Senate*).. .. ..*Not printed.*

124. Return to an Address of the Senate, dated 22nd February, 1912, for all correspondence respecting the inefficient postal delivery service at Rothesay, N.B.—(*Senate*).
Not printed.

125. Laid before the House, by command of His Royal Highness the Governor General,—Copy of agreement between His Majesty the King on behalf of the Dominion of Canada, His Majesty on behalf of the province of New Brunswick, and the Saint John and Quebec Railway Company, for the leasing under terms and conditions specified, of the line of railway when completed, of the company, between Grand Falls and Saint John, N.B. Presented 11th March, 1912... .. ..*Not printed.*

126. Return to an Order of the House of the 22nd January, 1912, or a copy of all correspondence and papers referring to the granting of special aid to the tobacco growers of La Société Co-opérative de la Vallée de Yamaska. Presented 13th March, 1912.—*Mr. Lemieux*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

127. Return to an Order of the House of the 22nd January, 1912, for a copy of all letters, correspondence, reports or other documents relating to the proposed winter harbour at Sarnia, Ontario. Presented 13th March, 1912.—*Mr. Pardee*.. .. .. ..*Not printed.*

127*a*. Return to an Order of the House of the 26th February, 1912, for a copy of all reports, petitions and correspondence in the possession of the Department of Public Works, relating to the improvement of Port Dover harbour, in Norfolk county, Ontario; together with all papers or documents relating to the connection of the Grand Trunk Railway Company therewith. Presented 29th March, 1912.—*Mr. Charlton.* *Not printed.*

127*b*. Supplementary Return to an Order of the House of the 26th February, 1912, for a copy of all reports, petitions and correspondence in the possession of the Department of Public Works, relating to the improvement of Port Dover harbour, in Norfolk county, Ontario, together with all papers or documents relating to the connection of the Grand Trunk Railway Company therewith. Presented 1st April, 1912.—*Mr. Charlton*.. .. ..*Not printed.*

128. Certified extract from the Minutes of a meeting of the Treasury Board held on the 4th March, 1912, approved by His Royal Highness the Governor General in Council on the 9th March, 1912, respecting the term of service and pay of the constables of the Royal Northwest Mounted Police. Presented 13th March, 1912... .. .. ..*Not printed.*

129. Return to an Order of the House of the 5th February, 1912, for a copy of all reports, correspondence and papers, relating to the building of a breakwater at Port Richmond, Nova Scotia. Presented 14th March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

129*a*. Return to an Order of the House of the 5th February, 1912, for a copy of all reports, correspondence and papers relating to the building of a breakwater at Charles Forests Cove, Richmond county, Nova Scotia. Presented 18th March, 1912.—*Mr. Kyte.* *Not printed.*

130. Return to and Order of the House of the 4th March, 1912, for a copy of all correspondence between the Intercolonial authorities, the Minister of Railways and the Department of Justice, and all other persons, relating to a claim of the Metapedia Waterworks Company against the Intercolonial, including therein all plans, designs, inquiries, evidences and other reports concerning this matter; also a copy of all plans, designs, notices and correspondence between the Intercolonial authorities and M. P. Laberge, the Dominion Lumber Company and John Fenderson & Co., relating to the placing of an aqueduct pipe on the land No. 170 of the cadastre of St. Pierre du Lac. Presentd 15th March, 1912.—*Mr. Boulay*.. .. ..*Not printd.*

131. Statement of the affairs of the British Loan and Investment Company, as on the 31st December, 1911. Presented 18th March, 1912.. .. ..*Not printed.*

132. Return to an Order of the House of the 6th March, 1912, for a copy of all letters, complaints, charges, and other papers and documents in the possession of the Post Office Department relating to Tracadie Road Post Office, Guysborough, N.S. Presented 19th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

133. Return to an Order of the House of the 6th March, 1912, for a copy of the news sent up to date to Magdalen Island by the weekly correspondent appointed by the Postmaster General; also for a copy of the instructions given said correspondent at the time of his appointment. Presented 19th March, 1912.—*Mr. Lemieux*.. ..*Not printed.*

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134. Return to an Order of the House of the 5th February, 1912, for a copy of all letters, telegrams, petitions, reports and documents relating to the notice of cancellation of mail contract between Scott Junction and the station in the county of Beauce. Presented 19th March, 1912.—*Mr. Béland*.. .. ..*Not printed.*

134*a*. Return to an Order of the House of the 31st January, 1912, for a copy of all letters, telegrams, correspondence, reports and other documents in relation to the mail contract between River John Railway station and the post office, and between River John and Hodson, respectively, since 1st October, 1911, and as to the cancellation of the contract for said service with Logan and the making of a contract for the same with one Gannon. Presented 19th March, 1912.—*Mr. Macdonald*.. .. .. ..*Not printed.*

134*b*. Return to an Order of the House of the 31st January, 1912, for a copy of all letters, telegrams, reports and other documents in relation to the mail contract service between Stellarton station and the post office since 1st October, 1911, and as to the cancellation of the contract for said service with the present contractor. Presented 19th March, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

134*c*. Return to an Order of the House of the 5th February, 1912, for a return showing all the contracts for the conveyance of His Majesty's mails, in which notice of cancellation has been given under the terms of the said contract, between 10th October, 1911, and 1st February, 1912, and also the name and address of each contractor and the amount of each contract. Presented 27th March, 1912.—*Mr. Lemieux.* *Not printed.*

135. Return to an Address to His Royal Highness the Governor General of the 17th January, 1912, for a copy of the Parcel Post Convention between Canada and France, and all papers connected therewith. Presented 19th March, 1912.—*Mr. Lemieux.* *Not printed.*

136. Return to an Order of the House of the 22nd January, 1912, for a copy of all letters, telegrams, reports, recommendations applications and other documents, relating to the appointment of a post office inspector at Moosejaw, Saskatchewan. Presented 19th March, 1912.—*Mr. Knowles*.. .. ..*Not printed.*

137. Return to an Address to His Royal Highness the Governor General, on the 4th March. 1912, for a copy of all letters, telegrams and petitions, sent to the Government, or any of His Majesty's ministers, praying for the establishment of a separate school system in the Keewatin Territory. Presented 20th March, 1912.—*Mr. Lemieux*...*Not printed.*

138. Return to an Address to His Royal Highness the Governor General of the 28th February, 1912, for a copy of all papers, recommendations to Council, Orders in Council, or any other papers in connection with or having reference to the promotion of Mr. Binks to be Superintendent of the Dead Letter Office. Presented 28th March, 1912.—*Mr. Henderson*.. .. ..*Not printed.*

139. Return dated 12th March, 1912, for a copy of all correspondence between the Anglo-Canadian Chemical Company, and the Department of the Inland Revenue from 1st of January, 1911, to date.—(*Senate*)... .. .. *Not printed.*

140. Return to an Order of the House of the 26th February, 1912, for a copy of all papers on file with the Government and of all letters, telegrams and correspondence between the Labour Department and the Board of Conciliation in relation to the strike now and for some time past existing on the Grand Trunk Pacific Railway west of Winnipeg. Presented 21st March, 1912.—*Mr. MacNutt*.. .. ..*Not printed.*

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141. Return to an Order of the House of the 5th February, 1912, for a copy of all rulings or decisions made by the Minister of Customs, or the Tariff Board of the Department of Customs, since the 10th of October last, in reference to the duty payable in respect to Jute cloth, traction engines and partially dressed lumber, respectively; and likewise in reference to any other articles imported into Canada concerning which there has been any change in the rate of duty exacted at any time since the said date, as compared to the rate of duty exacted on such articles respectively immediately prior to said date. Presented 21st March, 1912.—*Mr. Turriff*.. .. ..*Not printed.*

142. Return to an Order of the House of the 5th February, 1912, for a copy of all letters, telegrams, petitions or other papers relating to any change or proposed change of postmasters at Powassan between 1st January, 1906, and 1st January, 1912. Presented 22nd March, 1912.—*Mr. Arthurs*.. .. ..*Not printed.*

143. Return to an Order of the House of the 13th March, 1912, for a return showing the rural mail routes established by the present Government; the number of requests received by the Post Office Department for the establishment of rural mail routes; the number of applications granted; the number not granted, and the reasons therefor. Presented 22nd March, 1912.—*Mr. Lemieux*.. .. ..*Not printed.*

144. Return to an Address to His Royal Highness the Governor General of the 12th February, 1912, for a copy of all Orders in Council, petitions and memorials, passed or received by the Government of Canada, respectively, since 1se July, 1908, relating to foreign shippings engaged in the coastwise trade in Canada; and also a copy of all correspondence between the Government or any departments thereof and any person, company or corporation relating to the same. Presented 25th March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

145. Return to an Order of the 26th February, 1912, for a return showing the various loans made by the Government of Canada since the year 1900; the periods for which they were made; where contracted; rate of interest; commissions paid and to whom; net proceeds per cent of each loan; will future loans be asked for by public tender, if so where? Presented 25th March, 1912.—*Mr. Lapointe (Montreal)*.. .. .. ..*Not printed.*

146. Return to an Order of the House of the 19th February, 1912, for a return showing the number and capacity of cold storage establishments in each of the principal cities of Canada; the kind and quantity, approximate value of food stuff and produce contained in each of these establishments, during the months of November and December, 1911, and January, 1912. Presented 25th March, 1912.—*Mr. Verville.*
Not printed.

147. Return to an Order of the House of the 17th January, 1912, for a copy of the Judgment of the Judicial Committee of the Privy Council in the case of the King *vs.* The Burrard Power Company, and of all Orders in Council for the transmission to the government of the province of British Columbia of the administration of all water rights in the Railway Belt; together with a copy of all correspondence between the Government of British Columbia and the Government of Canada with regard to the same. Presented 25th March, 1912.—*Sir W. Laurier*.. .. ..*Not printed.*

148. Return to an Address to His Royal Highness the Governor General of the 26th February, 1912, for a copy of all letters, documents and memoranda from the government of British Columbia, and all other papers relating to negotiations affecting the exportation of salmon, the boat rating in canneries, the system of issuing licenses and the restriction of licenses to Asiatics in the province of British Columbia, and all Orders in Council made in regard to any of these matters since 1st October, 1911. Presented 25th March, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

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149. Return to an Order of the House of the 19th February, 1912, for a return showing the date of the appointment of Mr. H. P. Duchemin to investigate complaints against government officials in Nova Scotia; the remuneration he is to receive for his services, the daily allowance specified for his travelling and living expenses, full detail of his remuneration and expenses, the amount paid him so far; any account or statement presented which has not been paid, the gross amounts for which accounts have been paid. The names of any other parties conducting investigations in Nova Scotia, their remuneration, the number of the commissioners appointed in all the provinces by the present government or any department, to investigate charges of political partisanship on the part of officials, their names and addresses, and the dates of appointment and remuneration, including allowance for expenses. Presented 27th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

150. Return to an Order of the House of the 4th March, 1912, for a copy of all letters, petitions, requests, memoranda, ministerial or departmental instructions in the possession of the Government or any department thereof, relating to the alleged change of name of Blind River Post Office, in the province of Ontario. Presented 25th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

151. Report from the Department of Labour on Wholesale Prices in Canada, 1911. Presented 28th March, 1912.—*Hon. Mr. Crothers*.. .. ..*Not printed.*

152. Résumé of General Elections, 1911. Presented 30th March, 1912.. .. .. ..*Not printed.*

153. Return to an Order of the House of the 12th February, 1912, for a return showing the amount paid since 15th October, 1911, for making and repairing mail bags, and for the metal parts thereof including locks; the names and addresses of the companies, firms and individuals to whom payment has been made, and the amount in each case. Presented 29th March, 1912.—*Mr. Kay*.. .. ..*Not printed.*

154. Return to an Order of the House of the 17th January, 1912, for a copy of all documents relating to the purchase and repair of the post office at Berthier-en-haut. Presented 1st April, 1912.—*Mr. Barette*.. .. ..*Not printed.*

155. Names of Commissioners appointed under 'Inquiries Act."—(*Senate*)...*Not printed.*

Royal Victoria Museum. Ottawa.

CANADA

REPORT

OF THE

MINISTER OF PUBLIC WORKS

ON THE

WORKS UNDER HIS CONTROL

FOR THE

FISCAL YEAR ENDED MARCH 31

1911

VOLUME I

Submitted in accordance with the Provisions of Chapter 39, Section 34, of the Revised Statutes of Canada.

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1911

[No. 19—1912.]

To His Royal Highness, Field Marshal, Prince Arthur William Patrick Albert, Duke of Connaught and Strathearn, K.G., K.T., K.P., etc., etc., Governor General and Commander-in-Chief of the Dominion of Canada.

I have the honour to lay before Your Royal Highness the Report of the Department of Public Works of Canada, for the fiscal year ended March 31, 1911.

I have the honour to be,

Sir,

Your Royal Highness's most obedient servant,

F. D. MONK,

Minister of Public Works.

OTTAWA, November 10, 1911.

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" post office		12-41	32				
" river		35					
" roads and bridges		33					
" Royal Mint		12-41	33				
" slides and booms		33		391		3-12	
" streets, repairs			32				
Owl's Head, N.S.		19		51			
Owen Sound, Ont.		29		213			
" public building		12-40					
Oyster Pond, N.S		19					
P							
Pabos Mills, P.Q.		26		150			
Pacific cable tariff							
Papineauville, P.Q.		26		150			
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" public building		7					
Partridge Island N.B., quarantine		23	11	110			
Paspebiac, P.Q		26		150			
Peace River, telepraphs							
Pelee Island, Ont., dredging		29		214			
" " telegraphs		34			13-89		
Pembroke, Ont		29		215			
" " public building		12-41					
Pendent d'Oreille, cattle quarantine		14					
Penetanguishene, Ont		29		215			
Penticton, B.C.		32					
Perce, P.Q		26		151			
Peribonka, P.Q., immigration building		9-39					
" " wharf		26		125-151			
Perkins Landing, P.Q		26		151			
Petewawa, Ont		29		215			
" " Slides		33					
Peterborough, Ont., public buildings		12-41	36				
Petit Decharge, P.Q		26		152			
Petite Rivière, N.S				52			
Petite Rivière Saguenay, P.Q		26		152			
" " Yamachiche, P.Q		26					
Petit Rocher, N.B.		22		106			
Petit Tourelle, P.Q		26					
Petrolea, Ont., public building		12-41	37				
Phillipsburg, P.Q.		26		152			
Phinneys Cove, N.S		19		53			
Phoenix, B.C., custom house		15					
Piche Point, P.Q				152			
Picnic Island, Ont		29		215			
Picton, Ont., public building		12-41					
Pictou, N.S., " "		7-37					
Pictou Island, N.S.		19		53			
Pictou, N.S.		19		53			
Pierreville, P.Q		26					
" public building		9-39					
Pinckneys Point, N.S		19		54			
Pink Rock, N.B.		22		106			
Pipers Cove, N.S		19		54			
Pitt River, B.C.		32		259			
Pleasant Harbour, N.S.		19		55			
Plessisville, P.Q., postoffice		9-39					
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Pointe a Elie, P.Q		26		153			
Pointe a la Fregate, P.Q		26					
Pointe a Piche, P.Q		26		152			
Pointe aux Esquimaux, P.Q		26		153			
Pointe aux Trembles, P.Q		26		154			
Pointe Claire, P.Q.		26					
Pointe du Chene, N.B		22		106			
Point Edward, Ont		30		216			
Pointe Sapin, N.B.		22		106			
Pointe St. Charles, P.Q., postoffice		38					
Pointe St. Pierre, P.Q		26		154			
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" " public building		12, 41	37				
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Port Burwell, Ont		30		219			
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" " public building		12, 41	37				
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Port Greville, N.S		19		56			
Port Hastings, N.S		19					
Port Hawksbury, N.S		19		57			
Port Hilford, N S				57			
Port Hill, P.E.I		21		86			
Port Hood, N.S		19		58			
Port Hope, Ont., harbour		30		222			
" " public building		12, 41					
Port Joli, N.S		19					
Port Kells, B.C		32		259			
Port Maitland, N S		19		59			
Port Malcolm, N.S		19		59			
Port Medway, N.S		19		60			
Port Mouton, N.S		19					
Port Perry, Ont., post office		12					
Port Rowan, Ont		30		222			
Port Selkirk, P.E.I		21		86			
Port St. Francis, P.Q		26		155			
Port Stanley, Ont		30		223			
Porters Lake, N.S		19		60			
Portsmouth, Ont		30		222			
Poupore, P.Q		26		155			
Prescott, Ont., harbour		30					
" public buildings		12, 41					
Prince Albert, Sask		31		251			
" " public buildings		14, 43	44				
Prince Edward Island, dredging		21		79			
" " harbours		21		79			
" " public buildings		7, 37	8				
Prince Rupert, B.C., post office		15	46				
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Proctor Wharf, B.C		31		259			
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" Prince Edward Island		7-37	8				
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" Yukon and generally	12		48				
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Quaco, N.B		22		107			
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" bridges				399			
" harbours		24		156			
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Red Point, P.E.I.		21		86			
Red River, Man.		31		243			
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Rents received						6	
" paid		33					
Restoule Bay, Ont.				225			
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Rexton, N.B.		22		108			
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" public building		8					
Richibucto Cape, N.B.		23		108			
Richmond, P.Q., public building		10–39					
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" public building		10–39	20				
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Rivière aux Outardes, P.Q.		26		158			
Rivière au Sable, Ont.		30		225			
Rivière au Vases, P.Q.		26		158			
Rivière Batiscan, P.Q.		26		128			
Rivière Baude, P.Q.		26		158			
Rivière Bécancour, P.Q.		26					
Rivière Blanche, P.Q.		26		159			
Rivière Blondelle, P.Q.		26		159			
Riviere Bonaventure, P.Q.		26					
Riviere Caplan, P.Q.		26					
River de Chute, N.B.				115			
Riviere des Bergeronnes, P.Q.		26					
Riviere des Prairies, P.Q.		26					
Rivière du Lièvre, P.Q.		26		390			
Riviere du Loup, P.Q.		26		159			
Riviere du Sud, P.Q.		26		160			
Riviere Godefroy, P.Q.		27		161			
River Inhabitants, N.S.		19		61			
Riviere Jesus, P.Q.		27					
River John, N.S.		19		61			
Riviere L'Assomption, P.Q.		27					
Riviere Maskinonge, P.Q.		27					
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River Ottawa, Ont., slides		33				3.12	
Riviere Ouareau, P.Q.		27					
Riviere Ouelle, P.Q.		27		161			
Riviere Peribonka, P.Q.		27					
Riviere Richelieu, P.Q.		27		162			
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" slides		33				5	
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River St. Lawrence, Ont.		30		225			
Riviere St. Louis, P.Q.		27		162			
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Riviere Yamaska, P.Q.		27					
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Roches Point, Ont.		30		227			
Rock Island, P.Q. post office.		10					
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St. Alphonse de Bagotville, P.Q		27		164			
St. Andre de Kamouraska, P.Q.		27					
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St. Andrews, P.Q		27		164			
St. Andrews rapids, Man				243			
St. Angele de Laval, P.Q.				164			
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Ste. Anne des Monts, P.Q.		27		165			
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St. Blaise, P.Q.		27		166			
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St. Charles de Caplan, P.Q.		27		167			
St. Chrysostome, P.Q		27					
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St. Cunigonde, P.Q., post office		10					
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St. Fidele, P.Q		27		168			
St. Francis river, P.Q				169			
" " N.B.				115			
St. Francois d'Orleans, P.Q		27					
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" " Regis, P.Q				170			
St. Gabriel de Brandon, P.Q., post office		10-39					
St. Gedeon, P.Q		27		170			
St. George, N.B		23		109			
Ste. Genevieve, P.Q.		27		170			
St. Godefroye, P.Q		27		170			
St. Henri, P.Q., post office.		10-39	20				
St. Hilaire, P.Q.		27		171			
St. Hyacinthe, P.Q., public building		10-39	21				
St. Ignace de Loyola, P.Q		27		171			
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" " river.				112			
St. Johns, P.Q., public buildings		10-39					
St. Joseph, N.S.		20		70			
St. Joseph de Letellier, P.Q.		28		173			
St. Joseph de Sorel, P Q.		28		174			
St. Lambert, P.Q..		28		174			
" " post office.		10					
St. Laurent d'Orleans, P.Q.		28		175			
St. Laurent, Man		31					
St. Lawrence pavilions.				214			
St. Leonard, N.B.		33		401			
St. Louis river, N.B.		23		120			
St. Marc, P.Q		28		175			
St. Martin, N.B.		23					
St. Marys, Ont., public bldg.		12-41	38				
St. Marys River, N.S.		20		70			
St. Marys Bay, P.E I.		21		87			
St. Maurice River, P.Q., slides		33		395		4-13	
St. Méthode, P.Q		28		175			
St. Michel de Bellechasse.		28		175			
St. Michel de Yamaska, P.Q.		28					
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St. Omer, P.Q		28		176			
St. Ours, P.Q.		28		176			
St. Paul de l'Isle aux Nois, P.Q				177			
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St. Paul de Joliette, P.Q.				177			
St. Peters Bay, P.E.I.		21		87			
St. Pierre les Becquets, P.Q		28		177			
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St. Roch des Aulnais, P.Q..		28		178			
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St. Thomas, Ont., public bldg.		12-41	38				
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S							
Sabrevois, P.Q.		28		179			
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Saguenay, P.Q river.				179			
" slides		33		397		5	
" telegraphs		34			12.81		
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Salmon River, N.S.		19		63			
Salaries of clerks of works.		16					
Sambro, N.S.		19		63			
Sand Point, N.B.		23		111			
Sandwich, Ont., public bldg.		12 41	37				
Saruia, Ont.		30		229			
" public bldg.		12-41	37				
Saskatoon, Sask., public bldg.		14-43	45				
Saskatchewan, public bldg.			43				
" river works.	13			248			
Sault Ste. Marie, Ont		30		230			
" public bldg.		12-41					
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Scotchtown, N.B.		23		118			

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Seaside, N.S		20		64			
Seine River, Man				245			
Selkirk, Man., public bldg		13-42					
" wharf		31		245			
Shag Harbour, N.S		20		65			
Shampers, N.B		24		118			
Shawinigan, P.Q., post office		10					
Shediac, N.B		24		120			
Shelburne, N.S		20		65			
" public bldg		7-37	6				
Sherbrooke, P.Q., public bldg		10-39					
Shigawake, P.Q		28		180			
Shippigan Gully, N.B		24		120			
Shrewsbury, Ont		30		231			
Sibley Harbour, Ont		30		231			
Sillery, P Q		28		180			
Simcoe, Ont., public building		12-41	38				
Skeena river, B.C		32		260			
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Skinners Cove, N.S		20		66			
Slides and booms		33		391		3	
" " officials							43
Smileys Point, N.S				66			
Smiths Falls, Ont., public building		12-41					
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Smyth Wharf, Ont		30					
Snake Island, Man		31		246			
Sooke, B.C		32		260			
Sorel, P.Q., public building		10-39					
" wharf		28		180			
Souris, P.E.I., harbour		21					
" " public building		7-37	8				
Souris, Man., postoffice		13	41				
Southampton, Ont		30		231			
South Bar, N.S				66			
South Cove, N.S		20		66			
South Gut, N.S		20		67			
South Ingonish, N.S		20		67			
South Lake, N.S		20		68			
South Nation river, Ont		30		232			
South river, Ont		30		233			
Spanish river, Ont		30		233			
Spanish Ship Bay, N.S		20		69			
Springhill, N.S., public building		7-37		6			
Spry Bay, N.S		20		69			
Stanley Island, Ont		30		233			
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Strathcona, Alta, public building		15-43					
Strathroy, Ont., " "		12-41					
Sturgeon Falls, Ont		30		233			
" public building		12					
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" " harbour		21					
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" wharf		20					
Sydney Mines, N.S		20		71			
" public building		7-37	7				
T							
Tubusintac, N.B		24		121			
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Telegraph and Nigger Island, Ont		30		235			
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" reports					1		
" revenue					15		
" staff					3		
Tenecape, N.S		20					
Terrebonne, P.Q., public building		10-39					
Thames River, Ont		30		226			
The Range, N.B		23		119			
Thessalon, Ont		30		235			
Thetford Mines, P.Q., public building		10-39	21				
The Wharfs, N.S		20		71			
Thompson River, B.C		32					
Thornbury, Ont		30		235			
Three Fathom Harbour, N.S.		20		71			
Three Island Cove, N.S		20					
Three Rivers, P.Q., public buildings		10-39					
" wharf	10	28		183			
Tiffin, Ont	7	30		210			
Tignish, P.E.I		21					
" public building		8					
Tilbury, Ont., "		12					
Tilsonburg, Ont., post-office		12					
Temiskaming, P.Q		25		183			
Toney River, N.S		20		72			
Toronto, Ont., public buildings		12-41	38				
" harbour	9	30		235			
Toronto Junction, Ont., post-office		12-41					
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Tracadie, P.E.I		21		89			
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Traynors Cove, N.B.		24		122			
Treadwell, Ont.		30		236			
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Trenton, Ont., public building		13-41	38			14-5	
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" public building		10-39					
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" harbour	6	32		261			
Vancouver-Salt Spring telegraphs		34					
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Verdun, P.Q		28		185			
Vernon, B.C., public building		15	47				
Victoria, P.E.I	5	21		89			
" B.C		32		261			
Victoria, B.C., public building		15-44	47				
" Beach, Man				246			
Victoria-Cape Beale telegraphs		34					
" Harbour, Ont	7	30		237			
Victoriaville, P.Q., public building		10-39	21				
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Voglers Cove, N.S		20		73			
W							
Wainwright, Sask., immigration shed		15-43					
Walkerton, Ont., public building		13-41	39				
Wallace, N.S		20		68			
Wallaceburg, Ont., post office		13					
" "		30					
Walton, N.S		20		73			
Washago, Ont		30					
Washademoak, N.B		23		119			
Washow Bay, Man		31		246			
Waterloo, Ont., public building		13	39				
Waterways Commission		35					
Watters, N.B		23		115			
Waubaushene, Ont		30		237			
Welchpool, N.B		24		123			
Welland, Ont., public building		13-41	40				
Welland River, Ont		30		238			
West Advocate, N.S		20					
West Arichat, N.S		20		74			
West Baccaro, N.S		20		74			
West Berlin, N.S		20		75			
West Chezzetcook, N.S				75			
West Dublin Bay, N.S		20					
West Head, N.S		20					
Westmount, P.Q., post office		10					
West Port Joli, N.S				75			
Westport, N.S		20					
Westville, N.S., public building		7-37	7				
West Pubnico, N.S				75			
Wetaskawin, Alta., public building		15					
Weyburn, post office		15					
Whitby, Ont, harbour		30		238			
" public building		13-41	40				
White Mud River, Man		31		247			
White Point, N.S		20		76			
Whites Cove, N.S		20					
Whitewater, N.S		20		76			
Whycocomagh, N.S		20		76			
Wiarton, Ont		30		239			
Wilkie, immigration building		15-43					
Williams Head, B.C		32		262			
" quarantine station		15-44	48				
Wilson's Beach, N.B		24		123			

Names of Places, &c.	Part 1. Page	Part 2. Page	Part 3. Page	Part 4. Page	Part 5. Page	Part 6. Page	Part 7. Page
W							
Wilsons, Man				247			
Windsor, Ont., public building		13–41	40				
" N.S., "		7–37	7	77			
" " harbour		20					
Wingfield Basin, Ont		35		239			
Wingham, Ont., public building		13–41					
Winnipeg, Man., public buildings		13–42	42				
Winnipeg Beach, Man		31		247			
Winnipegosis, Man		31		248			
Wolfville, N.S., public building		7					
"		20		77			
Woodlands, N.B		24		123			
Woods Harbour, N.S		20					
Wood Islands, P.E.I		21		90			
Woodstock, N.B., public building		8–38	14				
" Ont., "		13–41	40				
Yakoun River, B.C. Y		32		262			
Yamachiche, P.Q		28		184			
Yamaska River, P.Q		28		184			
" lock and dam				390			
Yarmouth, N.S		20		78			
" public building		7–37	7				
York bridge		33					
Yorkton, Sask., public buildings		15–43					
Young's Cove, N.B		23		119			
Yukon, public buildings							
" telegraphs					13–104		

PART I

REPORT

OF THE

DEPUTY MINISTER OF PUBLIC WORKS

FOR THE YEAR ENDED MARCH 31

1911

REPORT

OF THE

DEPUTY MINISTER OF PUBLIC WORKS

FOR THE

FISCAL YEAR ENDED MARCH 31, 1911.

OTTAWA, October 31, 1911.

Hon. F. D. MONK, K.C.,
Minister of Public Works of Canada,
Ottawa, Ont.

SIR,—I have the honour to submit to you the report of the Department of Public Works, for the fiscal year ended March 31, 1911.

REVENUE.

It is gratifying to be able to state that the revenue received from the various public works, under the control of this department during the past twelve months, shows a satisfactory increase over the previous year. The revenue of the year 1910-11 amounted to the sum of $537,529.65; the increase over the year 1909-10 being $51,-644.69. The different sources from which the revenue of the department is derived, are the works constructed for the passage of timber on the Trent, Ont., St. Maurice and Saguenay rivers, Que., graving docks, rents and telegraph lines.

The increase occurs principally in the collection from slides and booms and telegraph lines. The former, however, does not indicate an increase in the timber business during the past year, but is accounted for by the payment of certain arrears with respect to which a settlement was arrived at, in connection with the Ottawa and St. Maurice works.

The statement of revenue follows:—

Slides and booms	$114,870 16
Graving docks	42,076 09
Rents	37,652 37
Telegraph lines	169,585 15
Casual revenue	173,345 88
Total	$537,529 65

EXPENDITURE.

The expenditure of the several branches was as follows:—

Harbours and rivers	$2,975,059 21
Dredging, plant, &c.	4,471,203 61
Slides and booms	190,187 77
Roads and bridges	90,061 49
Public buildings	3,090,665 78
Telegraphs	568,493 48
Miscellaneous	421,364 08
Total	$11,807,035 42

The total expenditure of the department, as will be seen, during the fiscal year 1910-11, amounted to $11,807,035.42, about one-half million dollars in excess of that of the preceding year; the increase occurring for the most part in the outlay on dredging, plant, &c. The above statement shows more concisely and accurately, than in any other way, the continued expanse of the work of the department. It is interesting, in this connection, to set down, as the best illustration of this growth, the figures covering a period of the last twenty years:—

1890–1891	$2,711,420 98
1891–1892	2,084,644 38
1892–1893	2,274,448 47
1893–1894	2,315,021 67
1894–1895	2,033,219 53
1895–1896	1,583,409 35
1896–1897	1,744,654 21
1897–1898	2,243,816 87
1898–1899	2,437,279 51
1899–1900	3,563,026 34
1900–1901	4,699,680 54
1901–1902	6,786,799 20
1902–1903	5,830,518 11
1903–1904	6,492,273 52
1904–1905	8,304,009 77
1905–1906	9,347,527 22
1906–1907	7,155,396 06
1907–1908	11,199,384 94
1908–1909	14,784,739 39
1909–1910	11,342,356 29

HARBOURS AND RIVERS.

The outlay of the department, under this heading, has amounted to $2,975,059.21. In addition to the maintenance of the rapidly increasing number of wharfs, breakwaters and piers, which task is constantly growing as these works yearly multiply,

there have been completed during the year under review, in the various provinces, the following new works:—

Nova Scotia.—Breakwaters at Dublin Shore, Falls Point, Fox Island, Delorey's Beach and Smiley's Point. Wharfs at Grass Cove, Gulf Shore, Lower Argyle, Muises Point, Arichat, Bourque's Cove, Creignish, Croft's Cove, Leitche's Creek, Pleasant Harbour, Sambro and Vogler's Cove. Wharfs purchased and improved at Port Malcolm and Spanish Ship Bay.

New Brunswick.—Breakwater at Cape Bauld. Wharfs at Cumming's Cove, Harvey Bank, Leonardville, Lower Caraquet, Partridge Island and Scotchtown. Wharf extension at Campbellton.

Quebec.—Wharfs at Becancour, Chicoutimi, Harrington, North Hatley, Peribonka, Petit Saguenay river, St. Ours, St. Paul de Joliette, Stratford Centre and Tadousac.

Ontario.—Brockville, wharf transferred to department and improved; Elk Lake wharf purchased and improved, and Whitby harbour works were purchased.

British Columbia.—Wharfs at Arrow Park, Athalmer, Bamfield Creek, Brisco, Burton City, Massett, Matsqui, Port Kells, Proctor, Queen Charlotte City, Queen's Bay, Skidegate, Smith's Landing, Stevenston and Sumas.

The following works have been placed under construction during the year at the following places:—

Nova Scotia.—Black Point, Burk's Head, Chapel Cove, Dover, Gillis' Point, Shelburne, South Cove, Sydney Mines and Upper Washabuck.

Prince Edward Island.—Lennox Island and Port Hill.

New Brunswick.—Bayside, New Mills, Sackville and Shediac.

Quebec.—Angers, Ayer's Cliff, Aylmer, Point a Coté, Contrecoeur, Lévis, Natashquan, St. Andrew's, and a breakwater at Paspebiac East.

Ontario.—Gravenhurst, a dam at Latchford and a wharf at Michipicoten.

Manitoba.—Winnipeg beach wharf.

As will be noted, no new work of first importance has been commenced during this year, but splendid progress has been made with the improvements which are being carried on in the various national harbours, to which attention has been called in previous reports.

I shall briefly state just what has been accomplished this year in each of these harbours.

NATIONAL PORTS.

VICTORIA, B.C., compares very favourably in volume of business with the ports on the Atlantic seaboard. In 1910, the ocean tonnage arriving was 1,235,584; and departing was 1,376,968, about equal to that of Halifax, N.S., or St. John, N.B. The

harbour is divided into three sections: The Upper Harbour, the Middle Harbour and the Outer Harbour; the whole having a formation very similar to the letter 'Z.' The improvements carried out by the government have been confined to dredging, and the removal of rocks obstructing the channel; the wharfage facilities having been left to private enterprise, which has, fairly well, kept pace with the requirements of the port. In the thirty years, from 1872 to 1902, there has been expended a sum aggregating nearly $500,000, one-half of which was for plant. This expenditure resulted in securing depths of 14 feet and 16 feet at low water. During recent years, the continuance of dredging operations has resulted in providing a depth of 30 feet around the wharves near the entrance, and 20 feet in the Middle Harbour; the 'Dredger rock' having been lowered from 16 feet to 20 feet clear. In the Upper Harbour, dredging is also being carried on to secure a uniform depth of 20 feet. During the year, the sum of $72,579.31 was expended.

VANCOUVER, B.C., has an ocean tonnage slightly in excess of that of Victoria. The department has in contemplation the execution of large improvements in Burrard Inlet, at the First Narrows. The dredge *Mastodon* was purchased for this special purpose, and, it is hoped, will be got to work on the proposed scheme soon after finishing at Alberni, B.C., where the dredge has been undergoing its trial test.

At PORT ARTHUR, ONT., dredging has been continued to afford a proper approach to the Thunder Bay elevator, and thence eastward along the Atikokan Coal Company, Limited, docks. The channel leading to the new dry docks of the Western Dry Dock and Shipbuilding Company was also improved.

The section, 2,770 feet in length, of the new breakwater which was under contract with Mr. M. J. Hogan, has been completed, and a contract for another section, commencing at Bare Point and extending westward, a distance of 3,200 feet, has been awarded to the Thunder Bay Construction Company.

At FORT WILLIAM, ONT., the work on the Mission river, in connection with the terminal facilities of the Grand Trunk Pacific railway, was pressed along, with the result that when the movement of grain from the west began in the fall, Slip No. 1, alongside the new elevator, was sufficiently dredged to permit the largest vessels to approach and leave the elevator without the assistance of tugs. At the beginning of the season, the channel leading to the elevator had a width of only 120 feet. At its close, the full width of 300 feet had been secured. In addition, thirteen cribs, forming a portion of the revetment wall around Slip No. 1, had been sunk in position and fully ballasted. From the elevator slip and the basin, a total of 3,053,960 cubic yards were removed. At the same time, attention was also given to certain shoal spots in other portions of the harbour, and 16,575 cubic yards were excavated, in the Kaministiquia river.

It was a matter of regret that during the year under review, greater progress was not made with the revetment wall, but I am happy to say that the present season has witnessed vast improvement, and it is anticipated that its close will see the completion of the contract for the Quay wall. Already, however, evidences are many that business requirements will necessitate the continuation of the wharfage facilities at no distant date. As to the remainder of the general scheme of harbour improvement

at this port, the department will now require to devote itself to the widening of the Kaministiquia and Mission rivers to the full width of five hundred feet. As soon as this is accomplished, the rapid construction of dockage facilities by riparian owners, along these waters, is confidently anticipated.

The Canadian Pacific railway, notwithstanding the extensive accommodation the company now possesses, finds itself cramped in handling the requirements of the ever-increasing business, especially with respect to the coal traffic, and has consequently purchased a large tract of land on Island No. 1, and awarded a contract for the construction of large coal docks on the McKellar river. The department has been called upon to perform the necessary dredging for the new facilities to be provided at this point, and the matter is at present under consideration.

The future prospects of these twin cities, the Dominion's gateway to its immense western wheat fields, are very bright indeed. Despite the vast water frontage, which is being made available, and which extends over twenty-five miles, dockage facilities are now at a premium.

Victoria and Tiffin, the Georgian Bay ports which are being developed by the Canadian Pacific railway and the Grand Trunk railway systems, respectively, are complementary to Lake Superior ports. The grain carried by these two lines of railway from the western provinces is borne by the large lake carriers from Fort William and Port Arthur, and re-shipped at Victoria and Tiffin by rail to Montreal for ocean shipment. The dredging operations of the department at these two harbours, and the construction of docks, elevators and harbour facilities, by the railway companies, have been keeping pace, and it is expected that next year will see the completion of the work.

At Victoria Harbour, the approach to the elevator has been completed almost down to grade, and on the west side the channel is nearly down to grade in front of the freight and flour sheds. During the past seventeen months, the dredges have removed 116,877 cubic yards of rock, and 700,437 cubic yards of other materials. The magnificent concrete elevator of the Canadian Pacific has a capacity of 2,000,000 bushels, and vessels can be unloaded at the rate of 20,000 bushels per hour.

The following steamers have called at this port:—

Empress of Fort William, Midland King, Neebing, McKee, Wexford, Crow, W. D. Matthews, Westmount, Kinmount, and Midland Prince.

During the year 1910, these vessels carried to Victoria Harbour 1,296,783 bushels of grain.

In front of the elevator, the company has constructed a solid concrete wharf down to rock foundation, 800 feet in length, and 536 feet of cribwork substructure is in position as a continuation of this wharf northerly, on which will be placed concrete superstructure. On the opposite side of the 600-foot slip, which is being provided, there has been completed 1,610 feet of wharf with crib-work substructure and concrete superstructure; and, in addition, 1,418 feet of crib-work substructure is in position. On the west side, there have been erected a flour shed 800 feet long by 87 feet wide; a freight shed 700 feet by 71 feet; a laundry 47 feet by 40 feet; a laundry boiler house 50 feet by 26 feet; ship stores and offices, 64 feet by 40 feet; ice house, 96 feet

by 40 feet, and power house for elevator, 110 feet by 90 feet. These are all finished and ready for business. The passenger station which is to be erected will be 55 feet by 25 feet.

At TIFFIN, a slip 400 feet in width, in front of the Grand Trunk elevator, has been practically completed to the east end of the elevator, in front of which there has been constructed a solid concrete wharf 800 feet long, down to rock, 28 feet below zero, and extending above the waterline 6 feet 6 inches.

In addition to the Grand Trunk Pacific grain elevator, there is the 'Aberdeen.' During 1910, the latter elevator received 7,503,187 bushels of grain, and the former 7,364,229; while at the elevator in Midland proper, 5,119,494 were received. Judging by the receipt of grain at these elevators so far, the year 1911 bids fair to considerably exceed these figures.

During the past seventeen months, there have been removed from the harbour at Tiffin, 65,298 cubic yards of rock and 208,747 cubic yards of other materials.

While large expenditures are being made at the ports which are being particularly developed for the grain trade, the provision of facilities and improvements at other important harbours, along the Great Lakes, is not being neglected.

At Goderich, a contract was awarded on October 29, 1910, for the construction of 600 feet of breakwater, about 1,200 feet south-east of the entrance to the harbour, and, incidentally, it may be mentioned that somewhat of a departure in the usual method of construction has been adopted in this work. Reinforced concrete caissons have been constructed, which are towed to the site of the work and sunk into position by the letting in of water through valves. These caissons are then filled with sand and gravel, and will have a mass concrete superstructure. This point also does a considerable grain business, a branch of the Western Canada Flour Mills being established there, which supplies the local demands of the western Ontario peninsula.

Extensive harbour improvements are also in contemplation at Sarnia, Ont., the intention being to provide a basin forty-two acres in area, with a depth at 21 feet at low water, and, a wharf 1,200 feet long by 33 feet wide. It is also proposed to construct a wharf at Windsor, Ont., 484 feet long by 25 feet wide, consisting of steel anchor piles at the rear and wooden piles along the front face close-sheathed. There will be a superstructure of concrete 4 feet wide on top and 6 feet at the bottom, with a height of 7 feet. The flooring will be of concrete laid over sand and gravel filling.

At the Lake Erie ports, Rondeau, Port Stanley and Port Burwell, all of which are principally engaged in the coal business, improvements are either being made or are in contemplation.

At Rondeau, the western pier has been extended.

At Port Stanley, it is proposed to build a breakwater 1,200 feet long, to protect the entrance to the harbour.

At Port Burwell, a breakwater 1,200 feet long, with substructure of crib-work and superstructure of concrete, is now being constructed.

Large coal ferries are operated by the Lake Erie Coal Company from Conneaut, Ohio, to Rondeau; by the Lake Erie Coal Company from Conneaut, Ohio, to Port

Stanley; and by the Canadian Pacific railway from Ashtabula, Ohio, to Port Burwell, which is only 16 miles from Tilsonburg, where coal is either stored or distributed by the Canadian Pacific, the Grand Trunk, the Wabash and the Michigan Central.

At Toronto, the one-half million dollar contract which was awarded in 1908, for the construction of a new western entrance to the harbour, is fast nearing completion. This is a splendid piece of work and reflects the greatest credit on the contractor, Mr. Robert Weddell, and on the department's capable engineer in charge, Mr. J. G. Sing, who designed and supervised the work. An eighteen-foot channel, 400 feet wide, has been provided between concrete piers which, being down to solid rock, permit of an increased depth by dredging whenever required.

Having noted the various harbour improvements now in progress, or which are to be put into execution, from the head of the Great Lakes, we come now to the outlet, Canada's greatest national harbour, MONTREAL. While the development of this harbour does not, at present, come directly under the Department of Public Works, any account which might be given of the work of improvement in the various Canadian harbours, would be incomplete without reference to the labours of the Montreal Harbour Commission. The year 1910, saw a substantial commencement made in the scheme of port development, which will extend for a period of, at least, a dozen years. A high-level railway has been constructed from Victoria pier to Molson's creek. A new grain elevator, with a storage capacity of 2,000,000 bushels, was placed under construction on July 27, 1910, and, it is expected, will be ready to handle the business of the season of 1912. In the meantime, the commission purchased the entire fleet of floating grain elevators of the Montreal Grain Elevating Company, to be used in the event of future congestion until the new grain elevator is completed. Progress has been made with the enlargement of the Victoria pier, and a market basin for river craft; the ultimate intention being to provide a low-level quay length of 4,800 feet on the inside of the basin, and, on the outer side, five ocean berths built to high-level for the accommodation of large tonnage vessels.

The Department of Public Works, under the provisions of the Dry Docks Subsidies Act, has entered into a subsidy agreement with the Canadian Vickers, Limited, for a floating dry dock at Molson's creek, and the commissioners propose to create at this point, from spoil removed from the channel, thirty acres of land with a protected basin for the floating dry dock. This will also enable, if required, the establishment of a high-level coal handling terminal in the eastern part of the city. The fourteen steel double-decked sheds, which were erected some three years ago, have already fallen short of the demand for shed space, and the commission now contemplate the erection of four additional permanent sheds on the Tarte pier. The wharf accommodation in Montreal harbour now is: For thirty-foot draught and over, 18,720 lineal feet; for twenty-five feet to twenty-seven and one-half draught, 15,840 lineal feet; for twenty feet and over, 3,137 lineal feet, aggregating 37,697 lineal feet, or a stretch of over seven miles of wharfage.

Despite the unfavourable conditions during 1910, for exportation of grain from America to Europe, it is gratifying to note the steady growth of grain trade through the port of Montreal; the movement of grain through elevator No. 1 having increased

from 11,700,000 bushels in 1909, to 14,900,000 bushels in 1910. Moreover, up to August 1, 1911, about 8,340,000 bushels of wheat have been shipped, as compared with a total, for the full season of 1910, of 9,541,000 bushels.

With pardonable pride, the commissioners refer, in their last published report, to a very flattering reference to the success of their efforts made by the Commissioner of Docks and Ferries of the port of New York, who says:—

'I believe at the present time that Montreal, while suffering from the disadvantage of ice obstruction in the winter time, nevertheless affords the best example of modern seaport organization. Unity of control, opportunity for expansion and a carefully prepared plan which permits of such expansion for generations to come, adequate articulation of land, and water factors and co-ordination of their uses under intelligent supervision, have had the effect of here bringing into most effective operation all of the separate factors which, combined, best serves the terminal needs of a seaport community.'

At Three Rivers, Que., a good progress is being made with the construction of a coal dock, 500 feet long, together with a crib ice-breaker, 115 feet long, contract for which was awarded on May 18, 1910. It is the intention to fill in behind the 'L' shaped dock an area of 670 feet by 365 feet, and also to construct an embankment 1,000 feet long by 20 feet wide, to carry a railway track. This work, it is expected, will adequately provide for the large coal shipments which are received at Three Rivers, to supply the many large manufacturing concerns in that district. The Dominion Coal Company has signified its intention, as soon as accommodation is provided, to materially increase its shipments to Three Rivers, and retain a large quantity in store there for winter delivery.

At Quebec, the new breakwater wharf, commenced in 1903, which is 1,460 feet long by 300 feet wide, is practically completed, there remaining only the retaining wall, which is in progress of construction, between the end of the new breakwater and the Louise embankment. Dredging is being performed on the inner side of the breakwater to enable seagoing vessels to berth on the inside, as well as the outside, where the Canadian Pacific railway *Empresses* now lie. A fifteen-foot channel is also being dredged for a distance of 3,000 feet up the St. Charles river, in which it is proposed to construct a lock and dam near the Q. M. & C. bridge. This latter improvement will raise and maintain the waters of the St. Charles river at a height of fifteen feet as far up as Bickell's bridge; and from there, gradually diminishing to a depth of ten feet, almost as far up as the Scott bridge road. The improvement of the St. Charles river will be a great boon to market boats, and the smaller class of shipping.

At Gaspé, the contract awarded in May, 1910, for the construction of a deep water wharf, 1,000 feet long by 95 feet wide, is half completed. It will be the terminus of the Atlantic, Quebec & Western railway, which runs from Matapedia to Gaspé. A line of steamers will be operated from the latter point to the western terminus of the Reid railway in Newfoundland, with a weekly service to England. The harbour of Gaspé is very extensive, and possesses an entrance 1,500 feet wide with a depth of

from forty feet to seventy-five feet at low tide, for a length of two and three-quarter miles, by a width of one and one-third miles; so that every opportunity for future development is afforded. A number of large lumber manufacturers are now located there, and, in view of the fact that important water powers can be created and developed, on both the York and Douglastown rivers, it is reasonable to expect that other important industries will be established as soon as proper shipping facilities are provided.

At HALIFAX, N.S., although the work does not come under this department, but under that of the Railways and Canals, it may be mentioned that extensive improvements are being made at the deep water terminus of the Intercolonial railway; a contract having been awarded for the construction of a wharf 800 feet long by 235 feet wide, with two extra sheds thereon.

At ST. JOHN, N.B., the extension to the Sand Point wharf, 837 feet in length along Rodney Slip, 180 feet along No. 6 berth and 317 feet on the harbour front, has been completed, together with a new warehouse, No. 7, 480 feet long by 80 feet wide, and the extension of No. 6 by an addition 204 feet long by 70 feet wide.

Dredging to thirty-two feet below low water was continued by the Maritime Dredging and Construction Company on the west side of the harbour. Three dredges were employed on the work, the *Cynthia*, the *Iroquois*, and the *Beacon Bar*. There has now been excavated a sufficient area to permit of the addition of four new berths to the west side terminal facilities. Tenders have already been called for a portion of the contemplated wharfing, comprising a length of 1,960 feet of crib-work substructure with concrete superstructure, and are now under consideration.

Tenders have also been invited for the construction of extensive works of improvement in Courtenay bay, including the construction of a dry dock of the first class, under the provisions of the Act to Encourage the Construction of Dry Docks, 9-10, Edward VII., Chapter 17. The harbour works proper which are proposed, consist of the construction of a breakwater for the protection of the bay, 4,570 feet in length, together with five groynes, each 150 feet long; the construction of 4,890 lineal feet of quay walls and, in addition, the dredging of a channel approximately 6,800 feet in length, 500 feet wide, to a depth of thirty-two feet at low water, from the main ship channel to the head of the breakwater above mentioned, and of a basin to a depth of thirty-two feet below low water in Courtenay bay.

DREDGING.

There has been expended under this heading the sum of $4,471,203.61; a considerable increase over last year's outlay. Dredging operations have been carried on at the following places:—

Nova Scotia.—Big Lorraine, Cribbins' Point, Digby, East river (Pictou), Harbour Bouche, La Have river, Little Bras d'Or, Liverpool, Lunenburg, Mahone Bay, Port Hood, Port Mouton, Shag Harbour, West Dublin Bay and Yarmouth.

Prince Edward Island.—Georgetown, Nine Mile Creek and Summerside.

New Brunswick.—Bathurst, Campbellton, Dalhousie, Grassy Island, Miramichi Bay and river, Oak Point, Oromocto shoals, Pointe du Chêne, Port Elgin, St. Andrews, Tabousintac, St. John Harbour, including the channel, Foul Ground and Beacon bar.

Quebec.—Aylmer, Baie St. Paul, Beauharnois, Berthierville, Lake Temiskaming, Lièvre river, Montmagny, Nicolet, Quebec, including St. Charles river, Rigaud, Rimouski, River Batiscan, River Bonaventure, Rivières des Prairies, Rivière du Loup (en haut), Rivière du Loup (en bas), Ottawa river, Saguenay river, Rivière St. Francois, Rivière St. Louis, River St. Maurice, Sorel, Verdun, Valleyfield, Yamachiche and Yamaska.

Ontario.—Byng Inlet, Cobourg, Collingwood, Fort William and Port Arthur, Goderich, Kincardine, Midland, Nipigon river, Owen Sound, Picnic islands, Port Burwell, Port Elgin, Port Hope, Port Stanley, Rainey river, St. Lawrence (between Kingston and Brockville), River Thames, Rondeau, Sault Ste. Marie, South Nation river, Spanish river, Telegraph and Nigger islands, Toronto, Victoria, Wallaceburg, Waubaushene, Welland river, Whitby and Wingfield basin.

Manitoba.—Lockport and Mossy river.

Saskatchewan.—Athabaska river (improvements), Lesser Slave river, North Saskatchewan and Last Mountain lake.

British Columbia.—Burton city, Columbia river, Essington, Fraser river, Nanaimo, New Westminster, Penticton, Skeena river, Thompson river, Vancouver, Victoria and Yakoun river.

The department has added four dredges to its fleet during the year: a bow-well elevator dredge was ordered from Messrs. Wm. Simons & Company, of Renfrew, Scotland, 207 feet long, 36½ feet beam, and 14 feet draught. The vessel has a steel hull, a speed of eight knots an hour and a capacity, in normal material, of five thousand cubic yards per day. This dredge has been assigned for service in the province of British Columbia. Two dredges, a boom dipper dredge and an orange peel were constructed by the department; the former 98 feet long, 34 feet wide, and swinging a two and one-half yard bucket. A shallow draught boom dredge was also constructed under contract for service in Prince Edward Island. This dredge is 65 feet long, 25 feet wide and swings a one-yard bucket.

PUBLIC BUILDINGS.

The expenditure in this branch of the department has been less than that of the preceding year. Following is a list of the buildings which have been brought to a successful completion and placed at the disposal of the department of the government service they were erected to accommodate:—

New Brunswick.—Chatham armoury.

Quebec.—Rimouski armoury.

Ontario.—Durham armoury, Leamington post office, Ottawa Royal Victoria Museum, Welland post office and Whitby post office.

Manitoba.—Emerson post office.

Saskatchewan.—Estevan post office, North Portal Immigration Hall and North Portal quarantine station.

British Columbia.—Vancouver new public building.

Contracts have been let during the year for the erection of new public buildings at the following places:—

New Brunswick.—Hartland post office, St. John armoury.

Quebec.—Arthabaskaville post office, Megantic post office, Rigaud post office, Roberval post office, Fraserville armoury.

Ontario.—Elora post office, Fergus post office, Ottawa (addition to East Block), Niagara Falls armoury and Waterloo armoury.

Manitoba.—Souris post office.

Saskatchewan.—Battleford post office.

British Columbia.—Prince Rupert hospital, Vernon post office.

In addition, the military stores building, Ottawa, which was partially destroyed by fire, was rebuilt, and the public building at Campbellton, N.B., and the customs house at Quebec, both of which were also burned, are in course of construction.

SURVEYS.

The usual minor surveys and examinations have been carried out by the engineers-in-charge of the various districts in connection with the location of wharfs, breakwaters and dredging. The only survey of major importance, on which the department is at present engaged, is that of the Saskatchewan river, to which a rather extended reference was made in last year's report. The work outlined there was actively followed up this summer, special attention being given to the study of the river from Prince Albert to Le Pas. Mr. L. R. Voligny, the engineer-in-charge, reports that the knowledge of conditions that obtain on the Saskatchewan river generally, gained from a careful study of results furnished by the surveys which have been carried out under his direction during the past two seasons, warrants him in stating with reasonable assurance that the section of the river between Prince Albert and Le Pas can be made navigable for shallow draught vessels, and that the cost of improvements required to accomplish this, will, relatively speaking, not be excessive. It is not possible, at the present time, to give more than an approximate idea of the cost, but Mr. Voligny feels confident that it will not exceed one and one-half million dollars, or an average of five thousand dollars a mile. This sum includes plant and

works of all kinds, viz., dredging, wing dams, shore protection, &c. An annual expenditure, therefore, of $300,000, would enable the necessary improvements to be completed within a period of five years.

It is also the intention to make a thorough examination of the head waters of the Saskatchewan river for storage purposes. This work will probably require a full seasons' time, owing to the difficulties of travel in the mountains and the necessity of cutting out a trail. The department hopes to undertake this investigation next summer.

It is anticipated that the creation of shallow-draught navigation, between Prince Albert and Le Pas, a distance of approximately 300 miles, would develop an extensive traffic in coal, iron, grain, lumber and farm products; these classes of heavy freight being naturally best adapted for water carriage. Once the river is made navigable, there is no reason why grain and other commodities should not be shipped by water as far as Le Pas, and there transferred to the Hudson's Bay railway. The country for about 150 miles below Prince Albert is well adapted to mixed farming. Cattle raising and dairy products constitute the main resources of that section. Below the Sipanock channel, for about 100 miles, the land is low and marshy, producing an abundance of excellent hay which should find a ready market in the event of cheap and ready transportation by water. The effective check on railway rates which would be one of the results of such a navigable route, must also not be lost sight of.

It is gratifying to observe the tremendous increase in traffic which has followed the opening of St. Andrews, Man., lock and dam, which made navigation possible from the city of Winnipeg to the lake of that name. From May to October, inclusive, in 1910, there passed through the lock 179 vessels having a registered tonnage of 44,243, to say nothing of 384 pleasure boats. During the same period in 1911, 347 vessels with a registered tonnage of 109,344 have made use of the lock, and 666 pleasure boats. A special feature is the growth of the wood, sand and stone business. During the season of 1910, there passed through 3,345 tons of cordwood, 75 tons of sand, and no stone; while during the season of 1911, this traffic had increased to 5,500 tons of cordwood, 14,659 tons of sand, and 18,000 tons of stone.

TELEGRAPHS.

During the year, there has been erected a total of 667 miles of new telegraph line. Three short lines, aggregating 41½ miles, were constructed in Nova Scotia; a length of 11¼ miles in New Brunswick; 42¾ miles in Quebec, including 33½ miles from Ville Marie to Kippewa dam; 350 miles in the Northwest, and 222 miles in British Columbia. The total expenditure incurred for construction and improvements was $135,523.44. The government now owns 8,150 miles of wire line, of which 450 miles are taken up by loops and double wire, and 266 miles of cable.

I would call attention to a number of half-tone engravings, which have been inserted in this years' report, which will be of interest as exemplifying types of wharfs and breakwaters, constructed by the engineering branch; and of public buildings, designed and erected under the supervision of the Chief Architect.

In conclusion, I must again acknowledge the hearty co-operation of the officers of the department, and the generally efficient manner in which their duties have been carried out.

I have the honour to be, sir,
Your obedient servant,

J. B. HUNTER,
Deputy Minister.

PART II

REPORT OF THE CHIEF ACCOUNTANT

FOR THE

FISCAL YEAR ENDED MARCH 31

1911

DEPARTMENT OF PUBLIC WORKS, CANADA,
ACCOUNTANT'S OFFICE,
OTTAWA, October 10, 1911.

R. C. DESROCHERS, Esq.,
Secretary,
Department of Public Works,
Ottawa.

SIR,—I beg to submit the report upon the expenditure made by this Department during the fiscal year ended March 31, 1911.

As in previous years, the report takes the form of three tabular statements, as follows :—

Statement A, showing the expenditures upon each work under the several heads of (1) construction and improvements, (2) repairs, (3) staff and maintenance. In treating of public buildings, as it would be cumbersome to give the cost of maintenance in detail in this statement, that expenditure is condensed into one item, for each province, the fuller detail being reserved for Statement B.

Statement B, showing separately for each building the cost of rent, salaries, heating, lighting and water.

Statement C, showing amounts advanced by Government for the construction of certain works of a semi-public character, under statutory authority and after inspection by officers of this Department. There were no transactions of this nature during 1910-11, and the Statement is only inserted to preserve the continuity of the Report from year to year.

The total expenditure during the fiscal year was $11,807,035.42, an increase of $464,670.13 over the expenditure of the preceding year.

The volume of work passed through the Accountant's Branch during 1910-11 may be briefly indicated as follows :—

——	Number of cheques issued.	Amount.
		$ cts.
Direct payment by Departmental cheque—		
Issued by head office, Ottawa	67,011	4,989,657 63
" agencies	13,838	1,065,670 98
Total Departmental cheques	80,849	6,055,328 61
Payment by Receiver General's cheque, after applications issued by this office, upon the Auditor General (contract work, etc)	1,131	5,751,706 81
Total expenditure		11,807,035 42

I have the honour to be, sir,
Your obedient servant,

A. G. KINGSTON,
Chief Accountant and Controller.

STATEMENT OF EXPENDITURE

DURING

FISCAL YEAR ENDED MARCH 31, 1911

STATEMENT A, showing the Amounts Expended by the Department of Public Works of Canada during the Fiscal Year ending March 31, 1911.

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS.	$ cts.	$ cts.	$ cts.	$ cts.
Nova Scotia.				
Amherst post office, &c	639 06	111 05	.....	750 11
Annapolis "	.....	223 23	.....	223 23
Antigonish "	300 00	70 41	.....	370 41
Arichat "	15 00	780 07	.....	795 07
Baddeck "	.....	322 27	.....	322 27
Bridgewater "	1,900 00	18 05	.....	1,918 05
Canning armoury	420 00	.....	.....	420 00
Canso post office, &c	205 00	814 09	.....	1,019 09
Dartmouth "	28 98	673 39	.....	702 37
Digby "	937 63	47 05	.....	984 68
Glace Bay "	3,403 30	.....	.....	3,403 30
Guysboro "	6 00	177 09	.....	183 09
Halifax appraisers office	1,650 16	68 90	.....	1,719 06
" cattle quarantine station	418 35	.....	.....	418 35
" custom house	442 20	8 65	.....	450 85
" power for machinery	.....	.....	307 25	307 25
" barracks—Wellington	.....	127 90	.....	127 90
" detention building	1,762 49	.....	.....	1,762 49
" Lawlor's Island quarantine station	.....	3,591 90	.....	3,591 90
" post office (former D. B.)	60,204 29	228 26	.....	60,432 55
" power for stamp machine	.....	.....	7 60	7 60
Inverness post office, &c	.....	107 20	.....	107 20
Kentville "	1,600 36	50 15	.....	1,650 51
Liverpool "	.....	174 16	.....	174 16
Lunenburg "	413 59	10 09	.....	423 68
Nappan experimental farm	270 56	44 38	.....	314 94
New Glasgow post office, &c	1,713 27	199 84	.....	1,913 11
North Sydney "	17 70	455 37	.....	473 07
North Sydney immigration shed	2,499 77	.....	.....	2,499 77
" quarantine hospital	.....	168 00	.....	168 00
Parrsboro post office	103 18	.....	.....	103 18
Pictou custom house	.....	17 75	.....	17 75
" post office, &c	.....	220 82	.....	220 82
Shelburne "	4,943 05	.....	.....	4,943 05
Springhill "	.....	78 16	.....	78 16
Sydney "	30 20	447 76	.....	477 96
Sydney Mines post office, &c	108 80	208 81	.....	317 61
Truro armoury	46 21	.....	.....	46 21
" post office, &c.	23 95	671 36	.....	695 31
Westville "	.....	1,001 63	.....	1,001 63
Windsor "	.....	38 31	.....	38 31
Wolfville "	109 06	.....	.....	109 06
Yarmouth "	6,114 59	472 35	.....	6,586 94
Heating, lighting, water, &c., for all buildings in Nova Scotia (for details, see page 37).	.....	.....	48,376 63	48,376 63
Totals, Nova Scotia	90,326 75	11,628 45	48,691 48	150,646 68
Prince Edward Island.				
Charlottetown Dominion buildings	59 00	1,166 14	.....	1,225 14
" additional Dominion building	10,333 33	.....	.....	10,333 33
" drill hall extension	4,000 00	.....	.....	4,000 00
Georgetown post office, &c	31 82	160 15	.....	191 97
Montague "	3 20	154 44	.....	157 64
Souris "	.....	836 54	.....	836 54

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS.—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Prince Edward Island—Continued.				
Summerside—armoury	145 93	.....	.....	145 93
Summerside post office, &c	191 50	191 94	.....	383 44
Tignish post office, &c	15 74	.....	.....	15 74
Heating, lighting, water, &c., for all buildings in Prince Edward Island (for details, see page 37).	.....	.....	8,550 33	8,550 33
Totals, Prince Edward Island	14,780 52	2,509 21	8,550 33	25,840 06
New Brunswick.				
Bathurst post office, etc	249 78	955 81	.....	1,205 59
Campbellton post office, etc	3,059 35	155 50	.....	3,214 85
Chatham armoury	5,660 99	.....	.....	5,660 99
" post office, etc	3,389 40	190 14	.....	3,579 54
" quarantine station	.....	432 33	.....	432 33
Dalhousie post office, etc	1 30	3 44	.....	4 74
Fairville "	25 00	.....	.....	25 00
Fredericton "	4,418 67	292 21	.....	4,710 88
Grand Falls post office, etc	195 71	.....	.....	195 71
Hartland "	1,352 11	.....	.....	1,352 11
Hillsborough "	51 19	.....	.....	51 19
Marysville "	.....	27 70	.....	27 70
Moncton armoury	7,001 05	.....	.....	7,001 05
" post office, etc	5,919 12	446 92	.....	6,366 04
Newcastle "	.....	43 43	.....	43 43
Richibucto "	.....	34 81	.....	34 81
St. John custom house	1,062 31	93 01	.....	1,155 32
" cattle quarantine station	.....	8 00	.....	8 00
" drill hall	19,781 10	.....	.....	19,781 10
" immigration building	.....	59 45	.....	59 45
" detention hospital	.....	175 35	.....	175 35
" engineer's office	.....	105 75	.....	105 75
" militia stores building	345 00	6 00	.....	351 00
" Partridge Island, quarantine station	5,687 34	467 50	.....	6,154 84
" post office	2,791 50	209 56	.....	3,001 06
" savings bank	95 00	191 20	.....	286 20
" West post office	.....	63 08	.....	63 08
St. Stephens " etc.	.....	87 70	.....	87 70
Sussex "	.....	224 05	.....	224 05
Tracadie Lazaretto	578 72	81 00	.....	659 72
Woodstock post office, etc	1,254 78	152 78	.....	1,407 56
Heating, lighting, water, etc., for all buildings in New Brunswick (for details see page 38)	.....	.....	42,051 85	42,051 85
Totals, New Brunswick	62,919 42	4,506 72	42,051 85	109,477 99
Quebec.				
Acton Vale post office, etc	.....	544 40	.....	544 40
Arthabaskaville post office, etc	474 23	.....	.....	474 23
Aylmer post office, etc	3,573 67	54 00	.....	3,627 67
Berthierville post office, etc	.....	438 23	.....	438 23
Buckingham "	276 62	319 70	.....	596 32
Chicoutimi "	1,498 59	144 42	.....	1,643 01
Coaticook post office	.....	738 69	.....	738 69
Cookshire "	542 29	244 27	.....	786 56
Drummondville post office	.....	261 81	.....	261 81
Dundee custom house	.....	19 75	.....	19 75
Grosse Isle quarantine station, improvements	6,827 15	.....	.....	6,827 15
Farnham post office, etc	8 49	123 42	.....	131 91
Fraserville armoury	5,106 14	.....	.....	5,106 14
" post office, etc	279 31	802 62	.....	1,081 93
Granby "	9 00	238 70	.....	247 70

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS.—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Continued.				
Hochelaga post office, etc	10 75	337 87		348 62
Hull "		196 61		196 61
Iberville "		4 80		4 80
Joliette armoury	1,990 51			1,990 51
" post office, etc	568 47	123 58		692 05
Knowlton armoury	283 50			283 50
" post office, etc		22 58		22 58
Lachine "	28 20	23 50		51 70
Lachute "	91 50	105 25		196 75
Laprairie "		97 10		97 10
L'Assomption post office	125 00	74 28		199 28
Lévis armory	629 93			629 93
" Fort No. 1	4,000 00			4,000 00
" cattle quarantine station		729 16		729 16
" post office, &c	1,076 57	425 84		1,502 41
Longueuil post office, &c	17 88	101 98		119 86
" barracks	3,658 75			3,658 75
Magog post office, &c	290 50	117 93		408 43
Magog armoury	939 14			939 14
Maisonneuve post office, &c	20 00			20 00
Marieville "	2,444 58			2,444 58
Megantic "	404 43			404 43
Montmagny "	6 50	265 75		272 25
Montreal custom house	1,783 37	293 63		2,077 00
" customs express branch quarters	2,079 02	327 29		2,406 31
" eastern postal station	2,089 12			2,089 12
" engineer's office	396 30	15 00		411 30
" examining warehouse (old)	7,777 15	1 00		7,778 15
" power for elevator			622 92	622 92
" immigration office		475 05		475 05
" inland revenue office		261 85		261 85
" military bldgs		12 30		12 30
" new examining warehouse		326 25		326 25
" 65th reg' armoury	1,201 00			1,201 00
" penitentiary's office (89 Cathcart St.)		69 90		69 90
" post office (main)	39,468 11	691 70		40,159 81
" power for elevator			2,896 67	2,896 67
" postal stn. "A" (Windsor Str.)	9 00	1 00		10 00
" postal station "B" (St. Catherine west)	61 18	310 92		372 10
" " "C" (Ambert St)	6 50	96 96		103 46
" " "D" (Pte. St. Charles)	1,833 76	30 01		1,863 77
" " "E" (St. Louis du Mile End)	3,289 76	1,031 11		4,320 87
" clerk of works office, Merchants' Bank building		29 58		29 58
Napierville post office, &c	15 00			15 00
Nicolet post office		94 66		94 66
Nominingue immigration building		285 45		285 45
Peribonka "		1 00		1 00
Pierreville post office	1,138 79	52 12		1,190 91
Plessisville "	297 80	3 40		301 20
Quebec citadel, Governor General's quarters		2,881 72		2,881 72
" custom house	3,465 16	3 40		3,468 56
" detention hospital	3,058 66			3,058 66
" Dominion arsenal		15 60		15 60
" drill shed (school of gunnery)	8,578 80			8,578 80
" examining ware house	10,042 38	34 80		10,077 18
" power for machinery			94 81	94 81
" Marine and Fisheries building		193 38		193 38
" military registry	343 00	448 24		791 24
" immigration building	6,324 78			6,324 78
" observatory	1,552 50			1,552 50
" post office	7,201 42	1 00		7,202 42
" power for machinery			924 98	924 98

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS.—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Continued.				
Quebec East, St. Roch's, post office	24,414 78	3 20	.....	24,417 98
" " power for machinery	.....	.....	36 00	36 00
Richmond post office, &c	20 35	83 27	.....	103 62
Rigaud armoury	1,360 53	.....	.....	1,360 53
" post office	1,909 67	.....	.....	1,909 67
Rimouski armoury	9,500 00	.....	.....	9,500 00
" post office	165 44	295 70	.....	461 14
Roberval immigration shed	.....	31 32	.....	31 32
" post office, &c	428 56	.....	.....	428 56
Rock Island post office, &c	2,565 80	.....	.....	2,565 80
Shawenegan "	900 00	.....	.....	900 00
Sherbrooke drill hall	1,257 54	.....	.....	1,257 54
" post office	237 35	872 55	.....	1,109 90
Sorel post office	4 64	419 80	.....	424 44
Ste. Cunégonde post office	9 80	13 57	.....	23 37
St. Gabriel de Brandon post office, &c	.....	6 00	.....	6 00
St. Henri post office	1,615 90	45 62	.....	1,661 52
St. Hyacinthe Inland Revenue office	.....	204 24	.....	204 24
" post office	45 90	289 55	.....	335 45
St. Jerome post office	7 80	49 91	.....	57 71
St. John's post office	3,045 15	82 77	.....	3,127 92
St. John's military buildings	.....	106 03	.....	106 03
" (Cavalry stables)	.....	7 20	.....	7 20
St. Lambert post office, &c	4,170 55	.....	.....	4,170 55
St. Therese post office	.....	144 04	.....	144 04
Terrebonne "	.....	32 15	.....	32 15
Thetford Mines "	140 10	1,079 29	.....	1,219 39
Three Rivers custom house	.....	33 22	.....	33 22
" drill hall and armoury	.....	13 30	.....	13 30
" post office	71 45	381 44	.....	452 89
Valleyfield post office	3 65	297 61	.....	301 26
Victoriavilie post office, &c	.....	434 13	.....	434 13
Westmount post office	14,706 70	.....	.....	14,706 70
Heating, lighting, water, &c., for all buildings in Quebec (for details see page 39)	.....	.....	157,422 30	157,422 30
Totals, Quebec	203,775 92	19,470 47	161,997 68	385,244 07
Ontario.				
Alexandria post office	.....	53 31	.....	53 31
Almonte post office, &c	.....	81 93	.....	81 93
Amherstburg post office	.....	27 63	.....	27 63
Arnprior "	12 35	332 74	.....	345 09
Barrie "	.....	179 10	.....	179 10
Belleville armoury	1,062 00	.....	.....	1,062 00
" post office, &c	65 95	419 04	.....	484 99
Berlin "	62 25	218 02	.....	280 27
Bowmanville "	.....	34 56	.....	34 56
Brampton "	.....	18 10	.....	18 10
Brantford drill hall and armoury	.....	250 00	.....	250 00
" post office, &c	341 69	68 79	.....	410 48
Bridgeburg Cattle Quarantine Station	2,222 17	.....	.....	2,222 17
" post office, &c	.....	48 21	.....	48 21
Brockville "	15 42	411 11	.....	426 53
Carleton Place "	.....	33 92	.....	33 92
Cayuga "	1 50	196 01	.....	197 51
Chatham armoury	387 15	.....	.....	387 15
" post office, &c	1,830 42	104 17	.....	1,934 59
Chesley "	15 00	.....	.....	15 00
Clinton "	35 00	17 33	.....	52 33
Cobalt custom house	.....	10 00	.....	10 00

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS.—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Ontario—Continued.				
Cobourg post office, &c	11 65	105 88		117 53
Collingwood armoury	114 50			114 50
Cornwall post office, &c	54 00	185 75		239 75
Desronto "		168 80		168 80
Dresden "	271 00			271 00
Dundas "	516 06	10 00		526 06
Durham armoury	2,682 78			2,682 78
Elora post office, &c	4,378 66			4,378 66
Essex "	93 13			93 13
Fergus "	1,967 09			1,967 09
Fort William post office, &c	1,580 02	98 05		1,678 07
Galt post office	555 13	196 60		751 73
Gananoque post office	7 15	19 55		26 70
Glencoe armoury	138 00			138 00
" post office, &c	250 00	494 45		744 45
Goderich "		72 56		72 56
Guelph armoury	17 00			17 00
" post office, &c	275 07	234 46		509 53
Hamilton custom house		277 91		277 91
" drill hall	143 97			143 97
Hamilton post office, &c	310 76	671 71		982 47
" power for machinery			27 00	27 00
" postal station "B"		33 94		33 94
" " power for machinery			7 02	7 02
Hanover, post office, &c		4 50		4 50
Harriston post office, &c	354 88			354 88
Hawkesbury post office, &c		132 34		132 34
Ingersoll "	137 00	59 09		196 09
Kemptville		4 53		4 53
Kenora "	507 11	75 50		582 61
Kincardine "	4,841 06	30 75		4,871 81
Kingston custom house		1,097 79		1,097 79
" Inland Revenue Office		218 30		218 30
" post office, &c	122 91	1,877 73		2.000 64
" ordinance stores		546 24		546 24
" R.M.C., improvements	373 85			373 85
Leamington post office, &c	9,385 65			9,385 65
Lindsey "	453 60	31 98		485 58
Listowel "	426 49	1 00		427 49
London custom house		364 18		364 18
" drill hall and armoury	340 00			340 00
" military buildings	81 09			81 09
" post office, &c	297 54	984 24		1,281 78
Markham post office, &c	126 40	92 42		218 82
Mitchell "	387 13			387 13
Mount Forest public building	298 46			298 46
Napanee post office, &c		188 34		188 34
Niagara Falls, armoury	11,505 86			11,505 86
" post office, &c	147 09	379 65		526 74
North Bay post office, &c	116 55	1,036 74		1,153 29
Orangeville "		8 91		8 91
Orillia "	469 71	69 60		539 31
Oshawa "	54 00	24 08		78 08
Ottawa—Archives building	2,341 68			2,341 68
" astronomical observatory	14,702 06			14,702 06
" power for machinery			205 80	205 80
Ottawa Departmental Buildings—				
Improvements in lavatories	10,002 18			10,002 18
Eastern Dept. Block (addition)	33,889 03			33,889 03
Ottawa, experimental farm	5,050 41	3,045 06		8,095 47
" fuel testing building (Dept. Mines)	3,172 50			3,172 50
" Langevin Block	6,960 09			6,960 09
" Major's hill park			7,961 50	7,961 50

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Ontario—Continued.				
Ottawa military buildings, stores	31,146 43			31,146 43
" " new magazine	1,100 00			1,100 00
" National art gallery	33,785 52		1,020 00	34,805 52
" new departmental building, Sussex st	104,447 92			104,447 92
" Parliament building, improvements	10,023 26			10,023 26
" " redecorating Sen. chambers	10,418 67			10,418 67
" post office	4,544 41	1 33		4,545 74
" " power for elevator			657 00	657 00
" Rideau hall			23,635 51	23,635 51
" " grounds $10,182 99				
" " snow 1,219 40				
" " fuel and light 8,500 00			20,562 39	20,562 39
" " watchman 660 00				
" Royal mint, refinery	53,923 19			53,923 19
" Victoria museum	191,072 25			191,072 25
" generally, steel fittings	45,217 13			45,217 13
" " Parliament grounds	20,684 23		12,015 69	32,699 92
" " power for elevators			7,191 85	7,191 85
" " removal of snow			2,400 62	2,400 62
" " repairs and furniture		221,748 16		221,748 16
" " telephone service			17,983 60	17,983 60
Owen Sound post office, &c	1,088 95	1,621 77		2,710 72
Paris armoury	4,022 40			4,022 40
" post office, &c	500 73	47 90		548 63
Park Hill post office, &c	5,712 25	3 80		5,716 05
Pembroke "	1,922 23	590 43		2,512 66
Peterboro' armoury	1,199 73			1,199 73
" custom house		86 82		86 82
" post office, &c	1,023 83	100 73		1,124 56
Petrolia post office	5 70	226 26		231 96
Picton "	12 00	66 04		78 04
Port Arthur armoury	15,137 97			15,137 97
" immigration building		403 23		403 23
" post office, &c	45 15	123 87		169 02
Port Colborne "		142 35		142 35
Port Hope "		1,139 22		1,139 22
Port Perry "	1,915 30			1,915 30
Prescott custom house		34 95		34 95
" post office, &c	6 05	142 80		148 85
Renfrew "	421 65	553 27		974 92
Sandwich "	6 75	385 13		391 88
Sarnia armoury	1,063 79			1,063 79
" post office, &c	542 19	358 69		900 88
Sault Ste. Marie post office, &c	4 80	86 54		91 34
" img. and C. offices		50 00		50 00
Seaforth post office, &c	1 69			1 69
Simcoe "		420 50		420 50
Smiths Falls post office, &c		101 84		101 84
Stratford armoury	152 00	1 30		153 30
" post office	1,559 77	32 85		1,592 62
Strathroy "	7 80	771 51		779 31
Sturgeon Fall public building		1 31		1 31
St. Catherines post office	1,973 50	1,019 07		2,992 57
St. Mary's "		17 65		17 65
St. Thomas "	130 61	143 15		273 76
Sudbury "	345 95	0 65		346 60
Tilbury "	2,071 89			2,071 89
Tilsonburg "	452 18			452 18
Toronto custom house	308 56	278 33		586 89
" " power for elevator			163 06	163 06
" drill hall additional acc	9,454 18			9,454 18
" dist. engrs. office		3 40		3 40
" ex. warehouse	3,077 12	749 89		3,827 01

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Ontario—Concluded.				
Toronto inland rev. office	276 80	56 32		333 12
" meteorological observatory	6,039 43			6,039 43
" military bldgs. barracks	325 30			325 30
" new stores bldg	40 00			40 00
" post office	56,383 97	554 21		56,938 18
" power for elevator			434 72	434 72
" postal station 'A'	1,817 28	526 01	254 42	2,597 71
" postal station 'B'	870 17	252 74		1,122 91
" " 'C'	284 20	122 38		406 58
" " 'D'	62 00	109 12		171 12
" " 'E'	336 00	209 95		545 95
" " 'F'	232 60	330 94		563 54
" " 'G'	50 00	28 67		78 67
Trenton post office, &c		234 55		234 55
Uxbridge "	110 57			110 57
Walkerton "	227 33	43 18		270 51
Wallaceburg "	3,055 52			3,055 52
Waterloo "	3,851 50	157 25		4,008 75
Welland "	8,515 09	25 22		8,540 31
Whitby "	11,022 76			11,022 76
Windsor "	3,354 61	272 00		3,626 61
Wingham "		265 39		265 39
Woodstock armoury	134 60			134 60
" post office, &c	30 25	83 62		113 87
Heating, lighting, water, &c., for all buildings in Ontario (for details see page 41)			525,076 82	525,076 82
Totals, Ontario	783,510 91	250,072 89	619,597 00	1,653,180 80
Manitoba.				
Brandon drill hall	870 00			870 00
" experimental farm	188 66	748 25		936 91
" immigration shed		35 25		35 25
" post office, &c	84 00	462 25		546 25
Dauphin post office, &c	5,004 35	39 77		5,044 12
" immigration building	8 20	7 10		15 30
Emerson cattle quarantine station		100 00		100 00
" post office, &c	3,312 22	16 00		3,328 22
Gretna cattle quarantine station		481 25		481 25
Neepawa post office, &c		1,406 98		1,406 98
Portage La Prairie armoury	2 00			2 00
" post office, &c	363 56	70 15		433 61
St. Boniface post office, &c	7 00	163 38		170 38
Selkirk post office, &c		200 20		200 20
Souris post office, &c	7,859 65			7,859 65
Winnipeg armoury	1,522 85	270 42		1,793 27
" custom house	824 06	69 35		893 41
" district engineer's office		4 90		4 90
" examining warehouse		11 35		11 35
" new examining warehouse	14,403 40	160 35		14,563 75
" power for machinery			82 35	82 35
" immigration building	979 28	1,056 35		2,035 63
" power for machinery			88 77	88 77
" indian office		59 15		59 15
" military buildings	2,528 10			2,528 10
" old express parcel office, 157 Portage Avenue-East		40 35		40 35
" post office (old)	44,142 78	37 80		44,180 58
" post office (new)	4,617 33	2,862 60		7,509 93
" power for machinery			778 05	778 05
" postal station "B"	122 75	17 00		139 75

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Manitoba—Concluded.				
Winnipeg postal station "A" north of C. P. R. track.	39 27	119 12	.....	158 39
" Railway Commissioner's office	.....	84 54	.....	84 54
Heating, lighting, water, &c., for all buildings in Manitoba (for details see page 42)	.....	.....	66,865 76	66,865 76
Totals, Manitoba	86,909 36	8,523 86	67,814 93	163,248 15
Saskatchewan and Alberta.				
Banff, Park Commissioner's office	.....	58 25	.....	58 25
Battleford immigration building	200 00	.....	.....	200 00
" Dominion land office	1,393 47	150 90	.....	1,544 37
" public building	4,496 29	.....	.....	4,496 29
Biggar immigrant building	.....	125 00	.....	125 00
Brooks immigrant building	.....	0 75	.....	0 75
Calgary immigrant building	.....	6 00	.....	6 00
" irrigation Commissioner's office	361 99	.....	.....	361 99
" post office, &c	10,232 57	716 74	.....	10,949 31
" Engineer's office	.....	178 02	.....	178 02
" power for machinery	.....	.....	475 68	475 68
Edmonton Dominion lands office, &c	.....	514 83	.....	514 83
" immigrant building	.....	33 50	.....	33 50
" post office	24,965 57	406 13	.....	25,371 70
" power for machinery	.....	.....	467 96	467 96
Edson immigrant building	2,500 00	.....	.....	2,500 00
Entwhistle immigrant building	2,500 00	.....	.....	2,500 00
Estevan post office, &c	7,853 48	15 00	.....	7,868 48
Grouard Dominion lands office	899 75	113 03	.....	1,012 78
Herbert immigrant building	.....	5 05	.....	5 05
High River armoury	33 75	.....	.....	33 75
Humbolt Dominion lands office	.....	111 35	.....	111 35
" post office, &c	62 20	.....	.....	62 20
Indian Head experimental farm	.....	419 08	.....	419 08
" foresting station	1,452 51	12 50	.....	1,465 01
Lethbridge custom house & Dominion lands office	9,213 14	527 57	.....	9,740 71
" experimental farm	138 70	27 50	.....	166 20
" immigrant building	6,771 38	0 50	.....	6,771 88
" post office, &c	198 71	.....	.....	198 71
" new public building	20,050 88	.....	.....	20,050 88
Lloydminster armoury	156 50	.....	.....	156 50
" immigrant building	.....	4 50	.....	4 50
Lloydminster post office, etc	5,000 00	.....	.....	5,000 00
Macleod custom house	.....	220 00	.....	220 00
Maple Creek post office	1,091 79	46 80	.....	1,138 59
Maninthal custom house	269 85	.....	.....	269 85
Medicine Hat armoury	281 44	.....	.....	281 44
" post office, etc	4,857 66	398 40	.....	5,256 06
Melfort post office, &c	2,000 00	.....	.....	2,000 00
Moosejaw court house and Dominion lands office	20 00	575 13	.....	595 13
Moosejaw post office, &c	1,059 09	1,017 17	.....	2,076 26
North Battleford immigrant shed	.....	9 00	.....	9 00
North Portal cattle quarantine station	4,636 68	.....	.....	4,636 68
" immigrant building	3,310 80	7 00	.....	3,317 80
Pendant d'Oreille cattle quan. Stn.	3,698 00	.....	.....	3,698 00
Prince Albert Dominion lands and registry office	20 40	.....	.....	20 40
Prince Albert immigrant building	.....	50 00	.....	50 00
Prince Albert penitentiary	49,999 03	.....	.....	49,999 03
Prince Albert post office	3,585 58	18 90	.....	3,604 48
Red Deer Court house and Dominion lands office	.....	439 75	.....	439 75
Regina Dominion lands office	.....	37 10	.....	37 10
Regina immigrant building	.....	24 50	.....	24 50
Regina post office and custom house	5,254 33	203 15	.....	5,457 48
Saskatoon immigrant building	738 00	127 30	.....	865 30

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Saskatchewan and Alberta—Concluded.				
Saskatoon post office, etc	3,293 22	1,178 77		4,471 99
Strathcona armoury	66 94			66 94
Strathcona public building	290 92			290 92
Strathcona immigrant building	2,096 45			2,096 45
Swift Current immigrant building		128 10		128 10
" Dominion lands office	2,111 30	350 25		2,461 55
Unity immigrant building	2,482 00			2,482 00
Wainwright immigration building	56 00	7 50		63 50
Wetaskiwin post office, etc	1 69			1 69
Weyburn post office, &c	5,036 65			5,036 65
Wilkie immigrant building	85 80			85 80
Yorkton immigrant building		7 80		7 80
Yorkton post office, &c	7,364 16	34 92		7,399 08
Heating, lighting, water, etc., for all buildings in Saskatchewan and Alberta (for details see p. 43).			71,392 78	71,392 78
Totals, Saskatchewan and Alberta	202,188 67	8,307 74	72,336 42	282,832 83
British Columbia.				
Agassiz experimental farm	57 75	10 37		68 12
Atlin post office, &c		1,367 25		1,367 25
Bridesville cattle quar. station		650 00		650 00
Big-Muddy cattle quar. station		250 00		250 00
Chilliwack post office, &c	6,000 00			6,000 00
Cranbrook post office, &c	56 75			56 75
Cumberland post office, etc	1,991 46	14 88		2,006 34
Fernie drill hall	75 00			75 00
Fernie post office, &c	13,947 08	84 40		14,031 48
Gateway cattle quarantine station		160 00		160 00
Grand Forks public building	294 67			294 67
Greenwood public building	3,093 10			3,093 10
Huntingdon cattle quar. station	1,635 10			1,635 10
Kamloops post office	130 78	9 10		139 88
Kamloops lands office	143 94			143 94
Kiremos custom house	444 30			444 30
Kingsgate custom house	420 29			420 29
Ladysmith post office, &c		96 05		96 05
Nanaimo post office, &c	11,572 92	54 75		11,627 67
Nelson post office	760 55	477 92		1,238 47
New Westminister fisheries & Indian offices		446 25		446 25
New Westminister post office, &c	437 37	1,618 78		2,076 15
Phoenix custom house	451 95			451 95
Prince Rupert post office, &c	1,824 47			1,824 47
Prince Rupert quarantiue station	7,538 90			7,538 90
Revelstoke post office, &c	5,700 74	199 25		5,899 99
Rossland post office, &c		185 65		185 65
Vancouver Chinese hospital		18 00		18 00
" ex. warehouse	2,572 18	183 15		2,755 33
" post office (old)	9,731 92	146 50		9,878 42
" power for machinery			25 68	25 68
" post office (new)	855 30	524 58		1,379 88
" power for machinery			488 90	488 90
" public building	30,998 72			30,998 72
Vernon post office, &c	17,077 38			17,077 38
Victoria immigration building	591 27	194 15		785 42
" post office (new)	8,919 72	1,287 25		10,206 97
" power for machinery			690 99	690 99
" post office (old)	4,444 73	1,233 11		5,677 84
" power for machinery			227 60	227 60
" old custom house		401 64		401 64
" power for machinery			16 40	16 40

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS—*Concluded.*	$ cts.	$ cts.	$ cts.	$ cts.
British Columbia—Concluded.				
Williams Head quarantine station	4,907 21	180 00	.....	5,087 21
Heating, lighting, water, &c., for all buildings in British Columbia (for details see page 44)	.....	.....	52,148 63	52,148 63
Totals, British Columbia	136,695 55	9,793 03	53,598 20	200,086 78
Yukon Territory.				
Caveross custom house	434 00	.....	.....	434 00
Heating, lighting, water, &c., for all buildings in Yukon Territory (for details see page 44)	.....	.....	75,540 07	75,540 07
Totals, Yukon Territory	434 00	.....	75,540 07	75,974 07
Public Buildings Generally.				
Detroit, U.S.A. immigrant office	.....	41 80	.....	41 80
Advertising coal tenders—Dominion buildings	.....	.....	1,700 32	1,700 32
Printing, stationery, instruments, travelling, &c	.....	.....	18,719 64	18,719 64
Salaries of resident clerks of works	.....	.....	23,672 59	23,672 59
Totals, Public Buildings generally	.....	41 80	44,092 55	44,134 35

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Nova Scotia.					
Abercrombie wharf	823 10		6 75		829 85
Advocate Harbour repairs to pier			795 34		795 34
Amaguadees Pond, extension to wharf		1,291 33			1,291 33
Annapolis ice piers		26,249 57			26,249 57
Arichat deep water wharf		9,897 39			9,897 39
Arisaig addition to pier	336 33	4,786 02			5,122 35
Baddeck wharf			31 25		31 25
Baileys Brook harbour		845 29			845 29
Barachois (St. Ann's Bay), extension of pier		792 72			792 72
Barrington Head wharf, extension		1,649 93			1,649 93
Barrington's Cove (see Sydney Mines)					
Basswood Beach, extension of protection work		1,199 99			1,199 99
Battery Point, extension of breakwater		3,053 69			3,053 69
Bayfield, reconstruction of breakwater, &c		2,587 54			2,587 54
Bay St. Lawrence harbour works		3,615 25			3,615 25
Bear Cove	396 27				396 27
Big Harbour (shed)		125 93			125 93
Big Bras d'Or wharf (shed)		174 15	442 89		617 04
Big Lorraine	10,428 08				10,428 08
Big Tracadie harbour, repairs, &c			849 48		849 48
Black Point (Grand River) breakwater		137 71			137 71
Blue Rocks Island breakwater		349 47			349 47
Blondin (see Whitewater)					
Bluff Head breakwater		2,215 90			2,215 90
Boularderie (shed)		124 82			124 82
Bourgue Cove wharf		939 61			939 61
Breens Point breakwater		177 74			177 74
Broad Cove breakwater, repairs			572 24		572 24
Brooklyn, reconstruction of breakwater		127 13			127 13
Brûlé wharf, extension, &c		1,948 86			1,948 86
Burk's Head (North Ingonish) breakwater		236 30			236 30
Canning (see Habitant River)					
Cape Rouge boat harbour		22 67			22 67
Caribou Island causeway		2,000 00			2,000 00
Centreville (Trout Cove) breakwater			600 43		600 43
Chapel Cove breakwater		156 51			156 51
Chebogue harbour			9 00		9 00
Cheggogin Point breakwater, extension		1,974 97			1,974 97
Cheticamp harbour			60 50		60 50
Chipman's Brook harbour, repairs			999 31		999 31
Church Point, repairs to wharf			600 00		600 00
Cockawit Pass, removing boulders	2,999 60				2,999 60
Cow Bay (Port Morien) harbour imp'ts		12,731 00			12,731 00
Creignish landing pier		1,135 62			1,135 62
Cribbins Point wharf, &c	9,099 72	1,816 92			10,916 64
Croft's Cove boat landing		891 53			891 53
David's Cove breakwater		4,296 65			4,296 65
Deep Brook pile wharf		1,265 22			1,265 22
Delaps Cove breakwater		910 41			910 41
Delorey's Beach (Monk's Head) breakt'r		159 16			159 16
Devil's Island breakwater, extension		2 34			2 34
Digby Harbour improvements	21,082 20	27,394 18			48,476 38
Dover wharf		218 25			218 25
Dublin Shore breakwater		9,999 96			9,999 96
Duncan's Cove breakwater		134 09			134 09
East Bay wharf reconstruction		2,408 75			2,408 75
East Berlin, extension of breakwater		1,999 65			1,999 65
East Chazzetcook breakwater		1,128 33			1,128 33

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Totals.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Nova Scotia—Continued.					
Eastern Passage boat harbour	2,758 77	584 73			3,343 50
East Jeddore wharf, repairs			47 05		47 05
East Port Medway wharf, repairs			85 55		85 55
East River (Pictou Co.), near steel works	27,336 53				27,336 53
East River (Graham Fraser's wharf)	825 70				825 70
Ecum-Secum wharf		999 51			999 51
Eel Brook guide pier		649 81			649 81
Englishtown (shed)		91 10			91 10
Falls Point (see Woods harbour)					
Finlay Point		300 00			300 00
Fort Lawrence, repairs to piers, &c.			1,461 47		1,461 47
Fox Island beach protection		1,408 81			1,408 81
Gabarus breakwater, repairs			10 02		10 02
Georgeville wharf, repairs			793 34		793 34
Gillies Point landing pier		2,265 31			2,265 31
Grand Etang protection works	2,383 19	4,927 63			7,310 82
Grass Cove (Iona), Little Bras d'Or Lake wharf		1,978 07			1,978 07
Groves Point wharf		2,143 44			2,143 44
Gulf Shore breakwater		1,198 51			1,198 51
Habitant River (wharf at Canning)		1,999 75			1.999 75
Hall's Harbour breakwater		1,398 19			1,398 19
Hampton breakwater, extension		3,044 41			3,044 41
Harbour Bouche	11,051 00				11,051 00
Herring Rocks (see Port Joli)					
Hubbard's Point wharfs, repairs			492 75		492 75
Inverness (Broad Cove Mines) har. imp.		13,394 08			13,394 08
Irish Cove wharf repairing			600 31		600 31
Isaac's Harbour wharf repairs			503 67		503 67
Joggin's Mines breakwater wharf		9,013 11			9,013 11
Judique (at McKay's Point) break. pier		1,226 59			1,226 59
Kingsport breakwater		157 36			157 36
La Have river	50,437 82				50,437 82
Lake Ainslie, boat channel		24 54			24 54
L'Ardoise beach, protection work	44 66	1,789 74			1,834 40
L'Ardoise, repairs to breakwater			2,515 49		2,515 49
Leitche's Creek wharf		243 25			243 25
Liscomb Harbour wharf		64 06			64 06
Litchfield (extension of breakwater)		1,202 47			1,202 47
Little Anse breakwater		21 03			21 03
Little Bras d'Or	20,598 19				20,598 19
Little Harbour, wharf extension		796 23			796 23
Little Narrows, North		16 45			16 45
" South		741 27			741 27
Little River breakwater wharf		299 34			299 34
Little Tancook Island breakwater		264 85			264 85
Liverpool	7,966 58				7,966 58
Livingston's Cove, extension of bk'water		4,302 07			4,302 07
Long Island wharf			248 25		248 25
Lower Argyle wharf		2,368 48			2,368 48
Lower West Pubnico	1,198 64				1,198 64
Lunenburg	39,097 42				39,097 42
McKay's Point (see Judique)					
McNair's Cove breakwater wharf		2,444 88			2,444 88
Mabou breakwater		7,865 49			7,865 49
Mahone Bay	15,910 60				15,910 60
Malignant Cove, addition to piers		1,057 44			1,057 44
Margaree Harbour breakwater		4,200 45			4,200 45
Margaree harbour, ex. of pro. p. on w'tside		289 03			289 03
Margaree Island wharf			245 54		245 54
Margaretville breakwater, repairs			127 49		127 49
Melford wharf		41 63			41 63
Merigomish (Big Island) wharf		782 65			782 65

PART II—STATEMENT A—EXPENDITURE—*Continued*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Nova Scotia—Continued.					
Merigomish wharf		116 58			116 58
Mill Creek breakwater, repairs			947 27		947 27
Minasville (Dalrymple Point)		2 34			2 34
Monks Head (see Dolorey's Beach)					
Muises Point wharf, repairs			1,199 48		1,199 48
Mulgrave (Guysboro) wharf	3,204 66	23 36			3,228 02
Musquodoboit wharf, repairs	33 30		273 57		306 87
Necum Teuch wharf, repairs			396 00		396 00
Neil's Harbour (shed)		216 23			216 23
New Campbellton (wharf)		151 65	299 89		451 54
New Edinburgh wharf		157 87			157 87
Newellton, protection work, &c		749 14			749 14
New Harbour breakwater at Black Pt.			914 83		914 83
North East Harbour, wharf approach		687 26			687 26
North Ingonish (shed)		173 63			173 63
North River St. Ann's (shed)		61 95			61 95
North Wallace wharf			790 00		790 00
Nyanza wharf, extension		2,374 91			2,374 91
Ogden's Pond			349 99		349 99
Orangedale, block and span wharf		2,992 47			2,992 47
Ostrea Lake wharf, repairs protect. work			94 19		94 19
Owls Head wharf to complete		843 20			843 20
Oyster Pond			183 00		183 00
Parker's Cove harbour improvements		2,000 00			2,000 00
Parrsboro', repairs to wharf			1,664 11		1,664 11
Phinney's Cove, extension of breakwater		499 85			499 85
Pictou Harbour (Acadia Coal Co. pier)	234 00				234 00
Pictou Island West, wharf repairs, &c.			1,148 75		1,148 75
Pictou Light Beach, pro. works repairs			1,528 93		1,528 93
Pictou, I. C. R. dock	928 00				928 00
Pictou Harbour (Rustico)	1,181 60				1,181 60
Pinckney Point bk'water, extension		969 26			969 26
Piper's Cove, breakwater pier		5,110 74			5,110 74
Pleasant Harbour, completion wharf		790 87			790 87
Pomquet Harbour	1,299 25				1,299 25
Port Dufferin (bk'water at Smiley's Pt.)		2,551 24			2,551 24
Port Dufferin, repairs to wharf			1,203 39		1,203 39
Porters Lake, boat channel to Three Fathom harbour		4,506 39			4,506 39
Port Felix wharf and approach		294 20			294 20
Port George breakwater		2,999 99			2,999 99
Port Greville breakwater, repairs			202 33		202 33
Port Hastings wharf	55 80		9 66		65 46
Port Hawkesbury wharf, repairs			219 70		219 70
Port Hood harbour	5,258 17	22,412 35			27,670 52
Port Hood wharf (east side of harbour)			1,297 48		1,297 48
Port Joli (Herring Rock breakwater)		1,995 28			1,995 28
Port Maitland breakwater		1,872 89			1,872 89
Port Malcolm wharf		2,163 13			2,163 13
Port Medway breakwater, repairs			1,000 95		1,000 95
Port Mouton	6,710 59				6,710 59
River Inhabitants (Birch Island)	899 63				899 63
River John wharf, repairs			257 96		257 96
Robert's Cove (see Burk's Head)					
Rockland (East Ragged Islands) wharf, repairs			203 63		203 63
Ross Ferry wharf and shed		253 57			253 57
Salmon River breakwater, repairs			500 24		500 24
Sambro wharf		2,216 51			2,216 51
Saw Pit wharf		1,508 60			1,508 60
Scotch Cove shed and breakwater, repairs		242 39	13 46		255 85
Sallows Rock (see Yarmouth harbour)					

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Nova Scotia—Concluded.					
Seaside Co. (Roadway)			199 01		199 01
Shag Harbour	5,187 45		465 00		5,652 45
Shelburne Harbour Deep water wharf		7,912 50			7,912 50
Skinners Cove, protection works			241 28		241 28
South Cove wharf		4,681 94			4,681 94
South Gut St-Ann's (Shed)		117 09			117 09
South Ingonish wharf		122 31			122 31
South Ingonish, beach protection work			1,728 15		1,728 15
South Lake (Lakevale), extension of breakwater		699 99			699 99
Spanish Ship Bay (Liscomb) wharf, west side of Bay		1,011 26			1,011 26
Spry Bay wharf, repairs			199 93		199 93
St. Joseph (Roadway)		95 71			95 71
St. Marys River	198 01				198 01
Summerville wharf, repairs			1,200 00		1,200 00
Swims Point, removal of rocks and shed	415 10		106 51		521 61
Sydney Harbour (Smelt Brook)	2,888 01				2,888 01
Sydney Harbour (Whitney Pier)	3,500 00	231 94			3,731 94
Sydney Mines (wharf at Barrington's Cove)		778 31			778 31
Sydney (North)	134 80				134 80
Tenecape breakwater		133 57			133 57
The Wharves (Lunenburg Co.) breakwater		632 98			632 98
Three Fathom Harbour breakwater, repairs		119 58	997 76		1,117 34
Three Island Cove	3,206 96				3,206 96
Toney River, extension of protection piers		1,943 85			1,943 85
Trout Cove (see Centreville)					
Tusket Wedge wharf		6,001 28			6,001 28
Upper Prospect breakwater		3,685 29			3,685 29
Upper Washabuck (McDougal's wharf)		1,083 50			1,083 50
Voglers Cove wharf		1,111 94			1,111 94
Wallace wharf, repairs			202 68		202 68
Walton wharf, repairs			176 19		176 19
West Advocate breakwater		2 34			2 34
West Arichat, roadway repairs			48 49		48 49
West Baccaro breakwater extension		1,954 12			1,954 12
West Berlin, beach protection works, repairs			149 07		149 07
West Dublin Bay	13,599 85				13,599 85
West Head, removing of rocks	634 35				634 35
Western Head			66 00		66 00
Westport wharf		188 27			188 27
White Point (Queen's Co.) wharf			198 50		198 50
White Cove wharf extension		29 23			29 23
White Water (Blomidon) wharf			993 15		993 15
Whycocomagh wharf		2,398 11			2,398 11
Windsor	2,538 00				2,538 00
Wolfville, repairs to bed for vessels			217 12		217 12
Woods Harbour (breakwater at Falls Point)		3,882 04			3,882 04
Yarmouth Harbour Improvements	92,403 16	341 90			92,745 06
Yarmouth Harbour, (Sallows Rock)	620 05				620 05
Generally	6,332 08			2,873 33	9,205 41
Totals, Nova Scotia	376,237 22	308,865 21	33,985 77	2,873 33	721,961 53

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Prince Edward Island.					
Annandale wharf, repairs			75 08		75 08
Bedeque	3,955 26				3,955 26
Belfast pier (Halliday's wharf)	2,656 88		1,698 99		4,355 87
Belle River Harbour, protection works			2,076 44		2,076 44
Brudenell wharf, north side of river		165 38			165 38
Cardigan Bridge	1,484 59				1,484 59
Chapel pier			36 50		36 50
Charlottetown, Marine and Fisheries wharf	2,141 93				2,141 93
China Point pier repairs			980 96		980 96
Cove Head, Shear dam, repairs			1,149 12		1,149 12
Crapaud Hr., repairs to Victoria pier			1,133 00		1,133 00
Georgetown, Ry. wharf	4,237 67				4,237 67
Graham's Pond pier, repairs			301 77		301 77
Grand River pier			44 55		44 55
Haggerty's Wharf pier		2,135 88			2,135 88
Higgin's Shore pier			48 67		48 67
Holman's wharf (Prince Co)	671 75				671 75
Hurd's Point pier			17 84		17 84
Lennox Island wharf		1,022 53			1,022 53
McPherson's Cove pier			24 90		24 90
Miminigash Harb'r, extension of breakwater pier		946 03			946 03
Miminigash Harbour, repairs			356 34		356 34
Murray Harbour North, repairs to pier			427 90		427 90
Naufrage Pond, protected entrance channel		144 00			144 00
New London break water			768 90		768 90
Newport (North Cardigan) pier			49 30		49 30
Nine Mile Creek (Queen's Co)	7,021 27				7,021 27
North Cardigan (see Newport)					
Port Hill wharf		2,338 27			2,338 27
Port Selkirk Pier, repairs			424 87		424 87
Red Point Wharf, repairs			913 00		913 00
Rustico Harbour, breakwater, north side		235 18			235 18
Souris (Knights Pt.) breakwater		6,111 85			6,111 85
St. Mary's Bay pier			40 19		40 19
St. Peters Bay breakwater repairs			1,256 91		1,256 91
Summerside Harbour breakwater	7,215 18	1,303 61			8,518 79
Summerside, railway wharf	3,807 98				3,807 98
Tignish, protection pier		24,441 50			24,441 50
Tracadie, harbour improvements		122 38			122 38
Victoria (*see* Crapaud)					
Wood Islands, hr. improvements		1,414 09			1,414 09
Generally	3,166 04			3,700 75	6,866 79
Totals, Prince Edward Island	36,358 55	40,380 70	11,825 23	3,700 75	92,265 23
New Brunswick.					
Andersons Hollow wharf			25 00		25 00
Baie du Vin wharf, repairs, &c	766 20		562 65		1,328 85
Bathurst	14,069 84				14,069 84
Bayside wharf		236 67			236 67
Belas Basin (*see* Maces Bay)					
Belliveau village, approach to wharf			74 79		74 79
Black River wharf			711 07		711 07
Buctouche Beach		2,543 59	399 75		2,943 34
Burnt Church wharf	50 00				50 00
Campbellton deep water wharf	4,947 60	3,844 82			8,792 42
Campbellton old ferry wharf (head block)		4,019 32			4,019 32

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
New Brunswick—Continued.					
Campbellton (Traverse)	4,589 13				4,589 13
Cape Bald breakwater pier		16,039 26			16,039 26
Cape Tormentine breakwater		5,029 47			5,029 47
Caraquet wharf	3,125 75				3,125 75
Chance Harbour, landing pier		2,799 58			2,799 58
Chatham wharf, repairs			111 35		111 35
Chockfish river, breakwaters at mouth		2,414 85			2,414 85
Clifton (Stonehaven) breakwater					
Cummings Cove (Deer Island) wharf		15,071 37			15,071 37
Dalhousie harbour, breakwater	22,338 70	31 75			22,370 45
Days Landing (Kings Co.)	1,187 57				1,187 57
Dipper Harbour breakwater extension		179 36			179 36
Dorchester wharf (bed for vessels)	703 77	1,198 85	5 40		1,908 02
Dover (Petitcodiac River) wharfs—					
Steeves landing $ 1,597 87					
Gautreau wharf 275 73		1,873 60			1,873 60
Durham wharf, repairs			35 00		35 00
Escuminac breakwater		54 28			54 28
Grande Anse breakwater			194 50		194 50
Grandigue wharf		154 21			154 21
Grassy Island (King's Co.)	7,382 72				7,382 72
Great Salmon River, new pier on east-side of entrance		174 44			174 44
Harvey Bank (Dows wharf)		450 00			450 00
Hatfield's Point (King's Co.)	106 53				106 53
Heron Island wharf		730 41			730 41
Herring Cove breakwater			391 98		391 98
Hilyard Blocks (St. John Co)	643 96				643 96
Jenkins Cove (King's Co.)	532 65				532 65
Johnston's Cove (*see* Bayside)					
Kouchibougouac, harbour improvements		3,581 48			3,581 48
Lameque wharf		2,135 25			2,135 25
Lawlor's Point, (*see* Miramichi River)					
Leonardville wharf		7,001 00			7,001 00
Little Aldouane wharf		2,794 85			2,794 85
Loggieville			11 25		11 25
Lorneville breakwater wharf		796 21			796 21
Lower Newcastle wharf			304 94		304 94
Maces Bay wharf		383 44			383 44
Maquapit Lake (Queen's Co.)	3,957 81				3,957 81
Marble Cove (St. John Co.)	3,236 33				3,236 33
Mills Point wharf		71 75			71 75
Miramichi Bay	79,267 63				79,267 63
Miramichi River	5,055 26				5,055 26
Miramichi River, Lawlor's Point	5,530 40				5,530 40
Miscou wharf extension		143 94			143 94
Moncton wharf		11,398 96			11,398 96
Mizenette wharf			50 00		50 00
Neguac wharf extension		673 12			673 12
New Mills wharf		3,479 30			3,479 30
North Head breakwater wharf (Grand Manan)			160 74		160 74
Oak Point wharf (Traverse)	30,199 31		266 66		30,465 97
Oromocto Shoals	19,562 33				19,562 33
Petit Rocher, roadway to breakwater		1,047 45			1,047 45
Pink Rock wharf (Shepody Bay.)		11,491 62			11,491 62
Pointe du Chene breakwater	24,366 58	2,974 12			27,340 70
Pointe Sapin breakwater		101 08			101 08
Port Elgin (Westmoreland)	7,237 07				7,237 07
Quaco, Harbour, extension of east pier		4,400 00			4,400 00
Quaco, St. Martin's breakwater reps			320 45		320 45
Rexton wharf extension		2,792 54			2,792 54
Richibucto wharf		5,251 61			5 251 61

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.		Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS.—*Con*		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
New Brunswick—Continued.						
Richibucto cape breakwater wharf			2,365 51			2,365 51
Richibucto Harbour, piers on north and south sides			162 09			162 09
River St. John and tributaries, improvements—						
Andover, Grand Falls	$ 345 61					
Andover, Carleton	148 55					
Bérubé breakwater	100 25					
Beveredge	300 10					
Dow's Flats	160 00					
Dyment's	300 01					
Fred Watters breakwater	297 13					
Grand Falls Edmundston	199 50					
Grand River	201 05					
Green River	340 82					
Guerette's	99 00					
Johnny Albert's	502 57					
Kenebecasis	72 24					
Lavasseur (Madawaska Co.)	39 75					
Little River St. Francis	209 18					
Little River Grand Falls	152 00					
Little Tobique	75 00					
Lower St. John Fredericton, snagging	707 50					
McGowan's Middle Isds	20 00					
Madawaska River	95 25					
Ottallic stream	147 00					
St. Jacques	74 97					
Tweedales	382 52					
The Range	40 00					
Washademoak	47 50					
Generally	962 11					
			6,010 61			6,010 61
River St. John, construction of wharfs—						
Barker's	$ 1,313 37					
Brundage's Point	1 96					
Burton	2,646 00					
Lower Jemseg	288 36					
Mather's Isld	143 00					
McAllister's	176 75					
Newcastle creek wharf	986 03					
Rothesay	2,175 73					
Scotchtown	1,492 85					
The Range	498 05					
Young's Cove wharf	562 41					
			10,284 51			10,284 5 1
River St. John, survey between Fredericton and Woodstock			4,377 56			4,377 56
St. Andrews wharf		41,487 21	1,727 64			43,214 85
St. George wharf			1,503 57			1,503 57
St. John Harbour—						
Channel		84,245 51				84,245 81
Sand Point			101,462 17			101,462 17
Foul ground		8,516 82				8,516 82
Beacon bar		334,087 39				334,087 39
Ballast wharf			348 16			348 16
Patridge Island			13,501 00			13,501 00
Negro Point breakwater			18,784 49			18,784 49
Courtney Bay, test borings			9,676 06			9,676 06
Fort Dufferin			913 14			913 14
Wiggin's wharf		987 50				987 50
St. Louis River, Impts			931 33			931 33
St. Martin's (see Quaco).						

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
New Brunswick—Concluded.					
St. Paul (Lower Caraquet) wharf	72 50	24,619 00	.....	.....	24,691 50
Sackville wharf	.....	169 01	.....	.....	169 01
Seal Cove, breakwater-pier (Grand Manan Island)	.....	50 14	.....	.....	50 14
Shampers (Kings Co.)	832 43	.....	.....	.....	832 43
Shediac wharf	.....	10,004 58	.....	.....	10,004 58
Shippegan gully	.....	3,000 00	.....	.....	3,000 00
Stonehaven breakwater pier	2,296 35	.....	2,030 32	.....	4,326 67
Tabucintac	5,123 57	.....	2 24	.....	5,125 81
Tracadie Harbour, Improvements, &c	.....	4,010 38	.....	.....	4,010 38
Traverse (Restigouche Co.), see Oak Point					
Traynor's Cove wharf	.....	1,069 23	.....	.....	1,069 23
Tynemouth Creek, H. Improvements	.....	900 00	.....	.....	900 00
Welchpool (Campobello Island) wharf	.....	.....	824 55	.....	824 55
Wilson's Beach (Campobello), repairs to slip	.....	.....	173 76	.....	173 76
Woodland's wharf	.....	1,422 38	.....	.....	1,422 38
Generally	7,941 41	.....	.....	7,667 39	15,608 80
Totals, New Brunswick	724,447 83	334,656 11	6,656 40	7,667 39	1,073,427 73
Quebec.					
Agnes Landing pier	.....	.....	8 10	.....	8 10
Anger (l'Ange Gardien) wharf	.....	5,744 27	.....	.....	5,744 27
Anse à Beau-fils addition to piers	.....	3,168 94	.....	.....	3,168 94
" aux Gascons wharf	.....	.....	.....	.....	.....
" aux Griffons pier	.....	4,264 70	.....	.....	4,264 70
" à la Grosse Roche (Saguenay)	.....	.....	600 93	.....	600 93
" à la Louise, rem. of boulders	152 50	.....	.....	.....	152 50
" à l'Eau (See Tadousac).					
" à l'Islot pier	.....	1,535 05	.....	.....	1,535 05
" du Cap (Cape Cove) breakwater)	.....	.....	344 98	.....	344 98
" St. Jean wharf	.....	.....	1,555 31	.....	1,555 31
Aylmer (Lake Deschênes)	6,925 29	4,995 54	.....	.....	11,920 83
Baie Lavallière	443 98	.....	.....	.....	443 98
Baie St. Paul (Cap aux Corbeaux) wharf	5,511 98	.....	1,099 80	.....	6,611 78
Barachois de Malbaie pier	.....	4,718 44	.....	.....	4,718 44
Beauharnois	8,871 77	.....	.....	.....	8,871 77
Beauport wharf	.....	.....	802 62	.....	802 62
Berthier (en bas) wharf	.....	.....	62 07	.....	62 07
Berthierville	20,756 05	.....	.....	.....	20,756 05
Bic (old wharf)	.....	.....	1,000 12	.....	1,000 12
Bic Harbour, wharf at Pointe à Coté	.....	410 54	.....	.....	410 54
Bout de l'Ile	584 19	.....	.....	.....	584 19
Bryant's Landing wharf	.....	2,809 44	.....	.....	2,809 44
Cabano	.....	3,482 59	.....	.....	3,482 59
Cacouna wharf	.....	4,001 86	.....	.....	4,001 86
Cannes de Roches breakwater	.....	2,498 01	.....	.....	2,498 01
Canton Fabre wharf (Lake Temiscaming)	.....	2,623 60	193 51	.....	2,817 11
Cap à la Baleine, Harbour improvements	.....	201 00	.....	.....	201 00
Cap à l'Aigle wharf	.....	.....	2,269 13	.....	2,269 13
Cap Chatte, removal of boulders	149 25	1,941 29	.....	.....	2,090 54
Cap de la Madeleine wharf	.....	.....	188 00	.....	188 00
Cap Santé wharf	.....	.....	44 32	.....	44 32
Cap St. Ignace wharf	.....	.....	74 50	.....	74 50
Carleton wharf	.....	.....	1,499 91	.....	1,499 91
Chateauguay wharf	.....	1,389 15	.....	.....	1,389 15
Chateau Richer wharf	.....	4,009 24	.....	.....	4,009 24
Chicoutimi Harbour, improvements	100 00	7,428 11	.....	112 75	7,640 86
C					

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Continued.					
Coleraine wharf, Lake Megantic			10 25		10 25
Contrecœur wharf		8,063 91			8,063 91
Côte St. Catherine landing pier			799 33		799 33
Coteau Landing wharf		2,387 50			2,387 50
Crane Island (North side) wharf			214 25		214 25
Cross Point wharf			405 40		405 40
Deschambault wharf			16 15		16 15
Doucet's Landing, pile wharf		2,018 43			2,018 43
Douglastown pier, addition		525 68			525 68
Escoumains pier		823 29			823 29
Fabre (see Canton Fabre).					
Fassett wharf (River Ottawa)		90 15			90 15
Father Point wharf		4,201 09			4,201 09
Fraserville (see R.-du-Loup, en bas).					
Gaspé, deep water wharf		44,204 97			44,204 97
Gatineau Point wharf			40 00		40 00
Georgeville wharf			30 01		30 01
Grand Mechin wharf		6,053 71			6,053 71
Grande Rivière de Gaspé, repairs to wharf			8,257 39		8,257 39
Grande Vallée, breakwater pier		8,587 78			8,587 78
Grondines wharf			33 09		33 09
Grosse Isle quar. stn., wharf extension		765 88			765 88
Grosse Roche (see Anse à la).					
Harrington Harbour wharf		1,494 98			1,494 98
Honfleur wharf		2,917 23			2,917 23
Hudson wharf	1,678 24				1,678 24
Hull wharf	548 16			182 50	730 66
Iberville,			1,472 35		1,472 35
Ile aux Noix			45 47		45 47
Ile Bizard (St. Geneviève) wharf			373 35		373 35
Ile Perrot wharf south			939 22		939 22
Ile Verte wharf			1,500 00		1,500 00
Kamouraska wharf			973 91		973 91
Knowlton Landing			84 75		84 75
Lake Megantic, (see Stratford Centre)					
Lake Massawippi landing piers					
Ayer's Cliff 1,046.29					
North Hatley 2,034.13					
Generally 35.52		3,115 94			3,115 94
Lake Temiskaming	2,664 45				2,664 45
South end of lake	17,721 67				17,721 67
Lambton			8 25		8 25
Laprairie wharf		7,822 80			7,822 80
Laprairie, ice piers at St. Jacques			8 55		8 55
Lavaltrie	594 96		75 00		669 96
Les Eboulements wharf and shed		1,419 00			1,419 00
Le Petit Débarquement wharf		335 51			335 51
Levis graving dock		4,100 00		14,691 31	18,791 31
Levis, deep water wharf, &c		54,875 39			54,875 39
L'Islet wharf			372 13		372 13
Longueuil			8 25		8 25
Lotbinière wharf			220 71		220 71
Louiseville (see Rivière du Loup, en haut)					
Magog wharf			192 82		192 82
Maria, wharf extension		407 44			407 44
Maria Cape, beach protection		13 88			13 88
Marsouin wharf			44 24		44 24
Maskinongé, (see River Maskinongé)					
Matane protection pier		350 98			350 98
Mille Vaches, removal of boulders	609 17				609 17
Mistassini wharf (Lake St. John)		1,410 85	166 83		1,577 68
Mistook wharf		999 45			999 45

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Continued.					
Montebello (Riv. Ottawa)	300 00				300 00
Mont-Louis, repairs to roadway			603 15		603 15
Montmagny, basin	10,157 50				10,157 50
Montmagny, wharf, rear end of basin		356 52			356 52
Montmagny wharf, outer end of basin			998 96		998 96
Murray Bay wharf		2,436 29			2,436 29
Natashquan, breakwater pier		517 49			517 49
New Carlisle wharf			2,480 73		2,480 73
Newport			1 50		1 50
New Richmond, landing pier		3,538 93			3,538 93
Nicolet harbour	16,570 51				16,570 51
Norway Bay wharf, (River Ottawa)		9 50			9 50
Notre Dame de la Salette	4,490 40			835 83	5,326 23
Pabos Mills breakwater			464 48		464 48
Papineauville wharf		1,200 00			1,200 00
Paspébiac, east breakwater		4,693 58			4,693 58
Paspébiac, freight shed		499 06			499 06
Percé wharf (North Cove)		44 25	1,992 94		2,037 19
Péribonka, wharf (Lake St John)		1,410 85	995 72		2,406 57
Perkin's Landing, wharf		4,020 64			4,020 64
Petite Décharge, Lake St. John	969 53				969 53
Petite Rivière Saguenay, wharf		999 48			999 48
Petite Rivière Yamachiche (see Yamachiche)					
Petite Tourelle, removal of rocks	249 50				249 50
Phillipsburg wharf			597 97		597 97
Pierreville	313 02		5 10		318 12
Pointe à Brousseau, wharf		2,420 92			2,420 92
Pointe à Elie (Magdalen Ilds)		9,994 77			9,994 77
Pointe à Esquimaux, wharf		5,069 57			5,069 57
Pointe à la Fregate, removing of rocks	34 60				34 60
Pointe aux Trembles (en haut)	333 97	2,175 23			2,509 20
Pointe aux Trembles (Portneuf)		1,825 71			1,825 71
Pointe Claire			150 00		150 00
Pointe Piché wharf (Temiscaming)		1,977 32			1,977 32
Pointe St. Pierre, breakwater		2,983 57			2,983 57
Port Daniel, wharf			1,198 76		1,198 76
Port St. Francis, wharf			597 90		597 90
Poupore	1,326 00				1,326 00
Quebec harbour improvements and river St. Charles, estuary	34,223 03	245,056 80			279,279 83
Repentigny, wharf	255 00		657 60		912 60
Rigaud, wharf	4,533 45	1,691 80	33 08		6,258 33
Rimouski, wharf	8,638 66	8,125 18		981 66	17,745 50
Rivière à la Pipe, wharf		995 18			995 18
Rivière aux Outardes	409 87				409 87
Rivière aux Vases, wharf		5,074 85			5,074 85
Rivière Batiscan, Manitou Rapids	19,509 90		47 85		19,557 75
Rivière Becancour, wharf near mouth		4,708 08			4,708 08
Riv. Baude, removing of boulders	298 30				298 30
Rivière Blanche, removal of boulders	384 50				384 50
Rivière Blondelle			23 50		23 50
Rivière Bonaventure	6,929 79	3,001 19			9,930 98
Riv. Bonaventure, training pier		861 72			861 72
Rivière Caplan, protection piers		13 65			13 65
Rivière des Prairies, improvement	6,431 27				6,431 27
Rivière des Prairies, piers		522 52			522 52
Rivière du Lièvre, wharf of Buckingham		2,315 98			2,315 98
Rivière du Lièvre, lock				1,429 84	1,429 84
Rivière des Bergeronnes, wharf		2,659 32			2,659 32
Rivière du Loup, Fraserville	14,416 20		3,983 53		18,399 73
Rivière du Loup, Louiseville	16,797 50		12 60		16,810 10
Rivière du Sud, retaining wall		1,500 48			1,500 48

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Continued.					
Rivière Godefroy, Nicolet Co.		1,162 30			1,162 30
Rivière Jésus	546 60				546 60
Rivière L'Assomption (Charlemagne)	792 28				792 28
Rivière L'Assomption, at L'Assomption Village, ice breaking piers		672 95			672 95
Rivière Maskinongé	855 21				855 21
River Mistassini (Lake St. John) (*see* Mistassini).					
River Ottawa, at Vaudreuil (*see* Vaudreuil.)					
River Ottawa, (Green Shoals)	21,265 93				21,265 93
Rivière Ouareau, ice-breaking piers		3,129 03			3,129 03
Rivière Ouelle, wharf		4,488 23			4,488 23
Rivière Peribonka, Lake St. John) (*see* Peribonka).					
Rivière Richelieu, improvements		79,993 43			79,993 43
Rivière Richelieu (Belœil)	840 01	1,644 81			2,484 82
Rivière Richelieu (St. Denis)	1,393 70	2,571 06			3,964 76
Rivière Saguenay	38,555 89				38,555 89
Riv. Sault au Mouton	1,002 10				1,002 10
Riv. St. Charles (*see* Quebec Harbour).					
Rivière St. François	9,352 96		15 00		9,367 96
Rivière St. Jacques (*see* Laprairie).					
Rivière St. Louis, improvements	5,871 48				5,871 48
Rivière St. Louis, head gate				10 00	10 00
River St. Lawrence, protection wall between Laprairie, Little St. James River		10,639 80			10,639 80
Rivière St. Maurice	48,403 28				48,403 28
Riv. Verte, improvements of waterway	1,509 93				1,509 93
River Verte, wharf		1,489 65			1,489 65
Rivière Yamachiche (*see* Yamachiche).					
Rivière Yamaska (*see* Yamaska).					
Roberval (Lake St. John)	2,254 55		13 99		2,268 54
St. Alexis, Baie des Ha Ha, wharf		9,866 14	55 31		9,921 45
St. Alphonse de Bagotville, addition to wharf (south side)		7,980 07			7,980 07
St. Andrews, wharf on North River		2,130 50			2,130 50
St. André de Kamouraska, wharf		338 94			338 94
Ste. Anne de Bellevue, wharf	3,445 94		200 71		3,646 65
Ste. Anne des Monts, harbour improvements		4,514 45			4,514 45
Ste. Anne du Saguenay, wharf		1,999 34			1,999 34
St. Blaise, wharf on River Richelieu		1,198 81			1,198 81
St. Charles de Borromée, shed		307 77			307 77
St. Charles de Caplan, wharf		5,196 97			5,196 97
St. Chryrostôme, wharf			6 00		6 00
Ste-Croix, wharf		571 95			571 95
St. Denis, wharf on River Richelieu (*see* River Richelieu).					
St. Eloi (River à la Loupe) wharf		100 00			100 00
Ste. Emelie (Leclercville) pier		9,872 53			9,872 53
St. Félicien, Ashuapmouchouan River	3,017 04		22 50		3,039 54
Ste. Famille d'Orléans wharf		367 70			367 70
St. François d'Orléans wharf		4,761 93			4,761 93
St. François du Lac wharf	11,894 36	1,580 82			13,475 18
St. Fidèle, removing of boulders	1,100 00				1,100 00
St. Gédéon wharf		390 26	299 37		689 63
Ste. Geneviève (see Ile Bizard).					
St. Godefroy wharf (Bonaventure Co.)			99 70		99 70
St. Hilaire	284 00				284 00
St. Ignace de Loyola wharf		4,777 17			4,777 17
St. Irénée wharf, shed		2,958 72			2,958 72

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvement.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Concluded.					
St. Jean des Chaillons wharf		2,000 03			2,000 03
St. Jean d'Orléans wharf		1,306 32			1,306 32
St. Jean Port Joli wharf		1,100 47			1.100 47
St. Jérôme wharf			3,397 78		3,397 78
St. Joseph Letellier wharf		360 91			360 91
St. Joseph de Sorel wharf		9,043 65			9,043 65
St. Lambert guard wall			100 08		100 08
St. Laurent d'Orléans wharf			26 40	490 00	516 40
St. Marc	317 18		36 00		353 18
St. Méthode wharf (Tikouabé)		999 70			999 70
St. Michel de Bellechasse	2,660 38	1,499 56	35 00		4,194 94
St. Michel Yamaska (see Yamaska).					
St. Nicholas wharf			999 39		999 39
St. Omer wharf		1,311 69			1,311 69
St. Ours wharf (River Richelieu)		5,531 86			5,531 86
St. Pierre les Becquets	14,293 30				14,293 30
St. Placide	3,857 66				3,857 66
St. Roch des Aulnaies wharf			1,198 91		1,198 91
St. Siméon wharf			12 44		12 44
St. Sulpice wharf	275 00	886 29			1,161 29
St. Zotique wharf			592 42		592 42
Sabrevois			191 39		191 39
Shigawake breakwater, wharf extension.		1,678 04			1,678 04
Sillery wharf			2,983 98		2,983 98
Sorel (breakwater), Elizabeth St.		4,990 75			4,990 75
Sorel, deep water wharf		24,890 54			24,890 54
Sorel harbour	5,911 45				5,911 45
Sorel ice piers		3,060 80			3,060 80
Stratford Centre (Lake Aylmer)		3,495 32			3,495 32
Tadousac wharf		14,175 35			14,175 35
Tadousac, repairs to old wharf			199 14		199 14
Three Rivers, deep water wharf		37,450 97			37,450 97
Trois Pistoles, harbour improvements		1,523 35	499 99		2,023 34
Valleyfield	4,659 30				4,659 30
Vaudreuil, beach protection work	1,861 46	4,158 75	64 24		6,084 45
Verdun	7,779 50		713 81		8,493 31
Ville Marie wharf (Témiskamingue)	30 00				30 00
Yamachiche river	5,176 93				5,176 93
Yamachiche, Petite Rivière	682 20				682 20
Yamaska lock and dam				2,148 69	2,148 69
Yamaska river	13,703 85		1 25		13,705 10
Generally	69,891 41			36,523 56	106,414 97
Totals, Quebec	498,369 04	819,068 72	52,645 17	57,406 14	1,427,489 07
Ontario.					
Arnprior wharf		2,548 62			2,548 62
Bare Point, breakwater		1,711 04			1,711 04
Bewdley wharf		295 88			295 88
Blanche River, improvements	1,702 43				1,702 43
Blind River, reconstruction of wharf, &c		399 11			399 11
Bradford wharf, (Holland River)			52 10		52 10
Bowmanville harbour	4,799 87				4,799 87
Brockville	2,021 03	7,769 68			9,790 71
Bryant's wharf		39 10			39 10
Burlington channel, piers		40,142 58	427 70	2,134 70	42,704 98
Byng Inlet, improvements	22,429 22				22,429 22
Callendar wharf			135 17		135 17
Christian Island wharf			2,369 78		2,369 78
Chute à Blondeau wharf		831 86			831 86

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ontario—Continued.					
Clairmont Ferry (see South Nation River).					
Cobourg harbour	6,224 57	86,390 24			92,614 81
Colchester wharf, extension on Lake Erie		639 72			639 72
Colborne wharf			389 28		389 28
Collingwood harbour	5,841 25	2,310 20	484 07		8,635 52
Collingwood, graving dock				15,000 00	15,000 00
Cumberland wharf			23 83		23 83
Dawson Point wharf			30 00		30 00
Detroit river, protection of east breakwater		2,000 00			2,000 00
Five Mile Narrows	101 96				101 96
Fort William, (Kaministiquia River)	709,362 94	175,362 82			884,725 76
French River, (see Lake Nipissing)					
Goderich, harbour improvements	33,574 23	13,590 18			47,164 41
Grand Bend, repairs to approach, &c.			744 77		744 77
Gravenhurst (Lake Muskoka) wharf		684 18			684 18
Haileybury (Lake Temiskaming) harbour improvements		16,708 61	753 31		17,461 92
Hamilton harbour	3,426 31	666 16			4,092 47
Harwood, wharf extension			2,144 35		2,144 35
Hawkestone wharf			19 11		19 11
Hilton (St. Joseph's Island) wharf			354 93		354 93
Huntsville wharf		1,804 47			1,804 47
Juniper Island (Stony lake) wharf		11 30			11 30
Kincardine harbour	7,317 92		1,000 00		8,317 92
Kingston harbour	105 15	197 19			302 34
Kingston, graving dock				7,195 48	7,195 48
Kingsville harbour			3,975 03		3,975 03
Lake Nipissing, Shanty Lake, Monetville		4,374 61			4,374 61
Lake Nipissing, French River, regulating works at outlets		6,668 09			6,668 09
Lakeport, reconstruction of wharf		1,120 90			1,120 90
Leamington wharf			1,060 92		1,060 92
Lion's Head wharf	3,309 17		4,931 72		8,240 89
L'Orignal (Ottawa River)	624 34				624 34
Magnetawan wharf			1,201 83		1,201 83
Mallorytown, wharf repairs			800 58		800 58
Martin's Island		13 60			13 60
McGregor's Creek, bank protection works at Chatham		2,999 20			2,999 20
Meaford Harbour, improvements	4,349 73		986 81		5,336 54
Michipicoten wharf (Lake Superior)		335 65			335 65
Midland, harbour improvements, (Tiffin elevator)	115,858 64				115,858 64
Montreal River (Latchford dam)		25,048 86			25,048 86
Montreal River (Flat Rapids)	1,716 31				1,716 31
Newcastle harbour	1,999 60				1,999 60
Niagara-on-the-Lake	6,733 20				6,733 20
Nipigon River	20,537 10				20,537 10
North Bay	848 43		1,910 77		2,759 20
Oakville harbour	851 73		2,101 63		2,953 36
Oliphant dock			75 32		75 32
Oshawa, repairs to piers and warehouse			200 01		200 01
Owen Sound harbour	15,121 84				15,121 84
Pelee Island, western dock		146 99			146 99
Pelee Island, North Bay wharf		4,995 00			4,995 00
Pembroke wharf			64 35		64 35
Penetanguishene, repairs to wharf		1,994 83			1,994 83
Petewawa wharf			55 61		55 61
Picnic Islands improvements (G. Bay)	44,857 35				44,857 35

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ontario—Concluded-					
Point Edward (St. Claire River)	1,829 97		12 00		1,841 07
Port Arthur, harbour improvements	92,098 14	77,588 99			169,687 13
Port Bruce, west pier		627 10			627 10
Port Burwell harbour	17.783 92				17,783 92
Port Colborne, eastern breakwater			4,051 90		4,051 90
Port Credit	1,668 94				1,668 94
Port Elgin, harbour improvements	5,307 98	2,000 02			7,308 00
Port Hope harbour	7,122 73		3,181 19		10,303 92
Port Rowan wharf			644 78		644 78
Portsmouth, repairs to piers			1,954 88		1,954 88
Port Stanley harbour	7,589 59	9,117 28			16,706 87
Prescott	380 75				380 75
Providence Bay wharf		416 70			416 70
Rainy River (mouth)	56.248 08				56,248 08
Rivière aux Sables, checkwater pier		2,597 70			2,597 70
River St. Lawrence, Thousand Islands (Pavillions)		1,836 45			1,836 45
River St. Lawrence, between Kingston and Brockville	37,825 57				37,825 57
River Thames, at mouth	18,517 44	1,184 45			19,701 89
Robin's Landing wharf				50 00	50 00
Roche's Point wharf			25 00		25 00
Rockland (River Ottawa)	289 53				289 53
Rondeau harbour, improvements	22,027 95	84,373 43			106,401 38
Rosseau wharf (warehouse)			230 76		230 76
Sarnia	5,211 22				5,211 22
Sault Ste. Marie, wharf	14,792 86	6,073 35	441 74		21,307 95
Shrewsbury wharf, approach			29 85		29 85
Sibley harbour wharf		2,056 60			2,056 60
Smyth wharf, Elk Lake		1,145 91			1,145 91
Southampton, harbour improvements	4,008 25	5,773 80	212 07		9,994 12
South Nation River, improvements	4,175 56				4,175 56
South Nation River, at Clairmont ferry	4.066 05				4,066 05
South River	3,358 56				3,358 56
Spanish River, at mouth	10,343 75				10,343 75
Stanley Island	2,057 28				2,057 28
Sturgeon Falls	1,612 68				1,612 68
" River (mouth)	1,403 68				1,403 68
Sydenham River, Chenal Ecarté to Mitchells		229 40			229 40
Sydenham, North Branch, Winter's to Wilkesport	495 00				495 00
Telegraph and Nigger Islands (near Trenton)	58,528 96				58,528 96
Thessalon harbour		600 00			600 00
Thornbury	4,363 68	1,971 61			6,335 29
Tiffin harbour improvements (see Midland harbour)					
Toronto, harbour improvements	21,069 85	122,850 29			143,920 14
Treadwell wharf		317 20			317 20
Victoria harbour	256,117 64				256,117 64
Wallaceburg (Running Creek)	1,891 75				1,891 75
" (Sydenham River)	6,542 68				6,542 68
Washago, pile wharf, Lake Couchiching		1,038 46		7 81	1,046 27
Waubaushene (Fesserton, Coldwater)	19,109 41				19,109 41
Welland River	6,410 01				6,410 01
Whitby, harbour improvements	17,533 04				17,533 04
Wiarton, breakwater pier		3,941 49			3,941 49
Wingfield basin	14,079 25				14,079 25
Generally	43,013 25			12,837 66	55,910 91
Totals, Ontario	1,782,588 42	727,540 90	37,077 15	37,285 65	2,584,492 12

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Manitoba.					
Chippewa Creek	2,640 01				2,640 01
Icelandic river (mouth)	2,189 27				2,189 27
Lake Winnipeg wharf (Hnaussa)		956 96			956 96
Lockport	8,018 98				8,018 98
Mossy river (Winnipegosis)	5,677 12				5,677 12
Mossy river (Lake Dauphin)	3,334 94				3,334 94
Oak Point (Lake Manitoba)	1,625 55				1,625 55
Red River (at mouth)	3,764 98	6,056 88			9,821 86
Red River, St. Andrews Rapids		55,174 36		10,000 93	65,175 29
St. Laurent, protection works	504 65				504 65
Selkirk wharf	354 48	2,383 24			2,737 72
Snake Island	309 57				309 57
Washaw Bay	1,427 54				1,427 54
White Mud river (mouth)	696 36				696 36
Winnipeg, Beach harbour, pier		9,229 18			9,229 18
Winnipegosis (*see* Mossy river)					
Generally	1,378 19			5,748 43	7,126 62
Totals, Manitoba	31,921 64	73,800 62		15,749 36	121,471 62
Saskatchewan and Alberta.					
Athabaska River, removing boulders, &c.	10,806 58				10,806 58
Last Mountain lake	9,502 75				9,502 75
Lesser Slave river, improvements	9,184 12				9,184 12
North Saskatchewan river, opposite Prince Albert	4,939 39				4,939 39
North Saskatchewan river, wing dams		24,673 93			24,673 93
North and South Saskatchewan rivers, surveys of rapids		9,350 60			9,350 60
Prince Albert wharf		20 70			20 70
Generally				10,379 96	10,379 96
Totals, Saskatchewan and Alberta	34,432 84	34,045 23		10,379 96	78,858 03
British Columbia.					
Athalmer wharf		324 43			324 43
Bamfield wharf		5,132 50			5,132 50
Brisco wharf		733 57			733 57
Burton City wharf	6,827 51	5,974 69			12,802 20
Campbell River, improvement & wharf		3,844 71			3,844 71
Clayoquot wharf			500 00		500 00
Columbia River, near Burton	1,553 03				1,553 03
Columbia River—					
Above Golden .$ 3,519.01					
Revelstoke 10,966.09	14,485 10				14,485 10
Coquitlam River	651 74				651 74
Courtney River, protection works			1,147 30		1,147 30
Columbia and Kootenay Rivers, wharves—					
Arrow Park, protect. work .$2,852.09					
Proctor wharf, 3,967.96					
Queen's Bay wharf 7,199.97					
Generally 138.21		14,158 23			14,158 23
False Creek	2,024 03				2,024 03
Essington	6,582 38				6,582 38
Esquimalt graving dock				15,000 03	15,000 03
Fort George Canyon, Fraser River (upper)	6,682 99				6,682 99
Fraser River, improvements	48,586 15	1,751 72			50,337 87
Fraser River (lower). wing dams, &c.		34,965 02			34,965 02
Kincolith wharf		461 96			461 96

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
British Columbia—Concluded.					
Lockport, Queen Charlotte Island, wharf	.....	151 95	.....	.....	151 95
Massett, Queen Charlotte Islands, wharf	.....	2,991 28	.....	.....	2,991 28
Naas River	3,448 76	.....	.....	.....	3,448 76
Nanaimo harbour	15,696 54	.....	.....	.....	15,696 54
Fraser and Thompson Rivers, wharves—					
Matsqui wharf $2,768 43					
Pitt River " 1,879 42					
Port Kells " 1,851 85					
Steveston " 2,759 75					
Sumas " 1,790 00					
Generally 387 51					
	.....	11,436 96	.....	.....	11,436 96
New Westminster	12,808 80	.....	.....	.....	12,808 80
Nitinat Lake Outlet	48 13	.....	.....	.....	48 13
Okanagan Lake	307 76	.....	.....	.....	307 76
Penticton	7,468 22	.....	.....	.....	7,468 22
Queen Charlotte City, wharf	.....	4,015 40	.....	.....	4,015 40
Skeena River, improvements	5,209 27	.....	974 17	.....	6,183 44
Skidegate, Graham Island, wharf	.....	4,147 28	.....	.....	4,147 28
Smith's Landing, Howe Sound, wharf	.....	2,295 53	.....	.....	2,295 53
Sooke, harbour (blasting)	.....	4,893 57	.....	.....	4,893 57
Stewart, head Portland Canal, wharf	.....	15,000 00	.....	.....	15,000 00
Thompson River, improvements	8,364 93	.....	.....	.....	8,364 93
Upper Fraser river (*see* Fort George Canyon)	.....	.....	.....	.....	.....
Upper Lilloet river	2,819 10	.....	.....	.....	2,819 10
Vancouver harbour	16,653 83	.....	.....	.....	16,653 83
Victoria harbour	72,579 31	.....	.....	.....	72,579 31
Williams Head, quarantine station	.....	9,983 04	.....	.....	9,983 04
Yakoun River	9,952 93	.....	.....	.....	9,952 93
Generally	2,421 07	.....	.....	9,058 55	11,479 62
Totals, British Columbia	245,171 58	122,261 84	2,621 47	24,058 58	394,113 47
Yukon Territory.					
Lewis and Yukon rivers, improvements	.....	555 68	.....	.....	555 68
Harbours and Rivers Generally.					
General expenses of staff, &c	4,856 60	.....	.....	10,125 53	14,982 13
Salaries of district engineers, assistants, &c	.....	.....	.....	199,977 89	199,977 89
Totals, Harbours and Rivers generally	4,856 60	.....	.....	210,103 42	214,960 02
DREDGES AND DREDGING PLANT.					
Maritime Provinces	.....	166,388 45	58,806 94	.....	225,195 39
Ontario and Quebec	.....	116,195 95	73,929 25	.....	190,125 20
Manitoba	.....	30,609 87	6,029 80	.....	36,639 67
Saskatchewan and Alberta	.....	281 50	497 44	.....	778 94
British Columbia	.....	235,985 72	48,094 97	.....	284,080 69
Totals, Dredges and Dredging plant	.....	549,461 49	187,358 40	.....	736,819 89

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
SLIDES AND BOOMS.	$ cts.	$ cts.	$ cts.	$ cts.
Richelieu River (Belœil	.....	107 00	.....	107 00
River Saguenay	9,331 96	530 72	4,385 45	14,248 13
River St. Maurice	43,264 17	.....	58,791 90	102,056 07
Ottawa District—				
Black River	.....	257 12	.....	257 12
Coulonge River	.....	1,818 55	.....	1,818 55
Dumoine River	.....	8 00	.....	8 00
Gatineau River	5,097 20	1,149 29	.....	6,246 49
Madawaska River	.....	2,350 13	.....	2,350 13
Ottawa River	.....	2,511 04	27,683 17	30,194 21
Petawawa River	.....	3,097 09	.....	3,097 09
Newcastle district	.....	47 00	200 00	247 00
North Saskatchewan River, Goose encampment	26,574 56	.....	.....	26,574 56
Collection of slides and boom dues	.....	.....	2,983 42	2,983 42
Totals, slides and booms	84,267 89	11,875 94	94,043 94	190,187 77
ROADS AND BRIDGES.				
International bridge, St. Leonard-Van Buren	31,682 92	.....	.....	31,682 92
Interprovincial bridge, Metapedia	24,937 17	.....	.....	24,937 17
Chapeau bridge	18,902 81	.....	.....	18,902 81
Grand Creek bridge (Gatineau River)	.....	1,749 94	.....	1,749 94
Portage du Fort bridge	.....	20	.....	20
Ottawa City bridges and streets, maintained by Government—				
Laurier bridge	.....	875 00	.....	875 00
Chaudière bridges and approaches	.....	2,011 67	.....	2,011 67
Sappers, Dufferin bridges and Wellington street	.....	.....	6,849 59	6,849 59
Extension of Sappers and Dufferin bridge (Laurier Plaza)	778 19	.....	.....	778 19
Lighting all the above	.....	.....	1,658 00	1,658 00
York bridge (Grand River)	25 00	.....	.....	25 00
Northwest provinces and British Columbia—				
Edmonton bridge	.....	591 00	.....	591 00
Totals, roads and bridges	76,326 09	5,227 81	8,507 59	90,061 49

PART II—STATEMENT A—EXPENDITURE.—*Continued.*

Name of Work.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
TELEGRAPH LINES.	$ cts.	$ cts.	$ cts.	$ cts.
Newfoundland.				
Cape Ray (subsidy)	.....	.....	250 00	250 00
Nova Scotia.				
Cape Breton lines	9,333 13	.....	17,666 06	26,999 19
Prince Edward Island.				
Prince Edward Island and Mainland (subsidy)	.....	.....	6,946 66	6,946 66
New Brunswick.				
Bay of Fundy line	.....	.....	2,043 82	2,043 82
Escuminac line	.....	.....	600 40	600 40
Quebec (Mainland).				
North Shore of St. Lawrence, east of Bersimis	.....	.....	21,669 49	21,669 49
" " west "	3,947 28	.....	14,198 70	21,145 98
Quebec Islands.				
Anticosti line	.....	.....	6,969 97	6,969 97
Grosse Ile, quarantine system	7,017 93	.....	3,933 53	10,951 46
Isle aux Coudres (subsidy)	.....	.....	200 00	200 00
Isle St. Paul	.....	.....	23 68	23 68
Magdalen Islands line	140 74	.....	4,270 09	4,410 83
Cable ship *Tyrian*	.....	.....	55,994 93	55,994 93
Generally, Gulf and Maritime Provinces	.....	.....	7,082 40	7,082 40
Ontario.				
Pelee Island	.....	.....	3,395 16	3,395 16
Saskatchewan and Alberta.				
Qu'Appelle-Edmonton-Athabasca	29,802 78	.....	42,422 11	72,224 87
British Columbia and Yukon.				
Alberni-Cape Beale	.....	.....	1,308 50	1,308 50
Alberni-Clayoquot	2,997 08	.....	3,876 76	6,873 84
Ashcroft-Dawson	18,172 23	.....	199,999 18	218,171 41
Campbell River line	11,908 83	.....	417 33	12,326 16
Denman and Hornby Islands line	.....	.....	32 83	32 83
Golden-Windermere	1,304 55	.....	2,246 42	3,550 97
Kamloops-Okanagan	33,898 37	.....	14,655 80	48,554 17
Nanaimo-Comox	1,945 69	.....	6,381 35	8,327 04
Nanaimo-Gabriola Island	.....	.....	790 04	790 04
Sydney-Sydney Island	998 15	.....	13 69	1,011 84
Vancouver-Salt Spring-Pender Island line	.....	.....	875 30	875 30
Victoria-Cape Beale	11,056 68	.....	9,6 4 19	20,750 87
Generally, British Columbia	.....	.....	1,855 55	1,855 85
Telegraph Services, generally	.....	.....	3,155 80	3,155 80
Totals, Telegraphs	135,523 44	.....	432,970 04	568,493 48

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Miscellaneous.		Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
SURVEYS AND INSPECTIONS.		$ cts.	$ cts.	$ cst.	$ cts.
Survey of Richelieu and Yamaska rivers		8,459 40			8,459 40
" Maritime Provinces				28,732 96	
" Quebec				47,122 02	
" Ontario				22,856 26	
" Manitoba				858 95	
" Saskatchewan and Alberta				5,054 35	
" British Columbia				5,296 18	
" Generally				4,323 53	114,244 25
Upper Ottawa River Storage Dams—					
Kippewa dam	25,001 11				
Quinze "	27,292 52				
Temiskaming dam	86,995 21				
Generally	34,744 22	174,033 06			174,033 06
Upper Ottawa River Investigation		20,275 40			20,275 40
River Gaugings				3,887 16	3,887 16
Kippawa dam. Telephone		2,046 48			2,046 48
International waterways commission				28,959 50	28,959 50
International commission, River St. John, N.B.				29,819 02	29,819 02
Monument to the memory of the late George Brown.		22 00			22 00
" to the memory of the late Thos D'Arcy. McGee		22 00			22 00
Memorial to Sir Leonard Tilley at St. John, N.B., contribution		4,000 00			4,000 00
Royal Mourning, death of His Majesty King Edward VII.				26,506 99	26,506 99
Compensation to Geo. E. McLeod				940 00	940 00
Allowance to owners of pilot boat Defender				500 00	500 00
Compensation to Sydney J. Dale				500 00	500 00
" Hermile Bernier				100 00	100 00
" H. J. Lamb				2,500 00	2,500 90
" Benjamin Schultzen				1,000 00	1,000 00
Gratuity to the widow of the late G. Brown				466 66	466 66
" " " A. M. Fraser				200 00	200 00
Compensation to M. Kavanagh				500 00	500 00
Gratuity to the widow of the late N. Tessier				483 33	483 33
" " " Jos. Daigneault				110 00	110 00
" " " Jas. Bonner				86 40	86 40
" estate " Jas. Sorley				97 32	97 32
" widow " Ant. Chenier				92 00	92 00
" " " Sam. Adams				253 32	253 32
" " " Jean Roy				116 66	116 66
" estate " George Purcel				110 00	110 00
" " " David Allan				66 66	66 66
" " " Paul Johnston				120 00	120 00
" widow " Ernest Dionne				266 67	266 67
" representative " Chas Stewart				60 00	60 00
" widow " David Lapensée				91 80	91 80
" to the legal representatives of the late J. Delarey				78 00	78 00
" " widow of late R. W. Dillon				350 00	350 00
Totals, miscellaneous		208,858 34		212,505 74	421,364 08

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
RECAPITULATION.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Totals, Public Buildings—					
Nova Scotia	.....	90,326 75	11,628 45	48,691 48	150,646 68
Prince Edward Island	.....	14,780 52	2,509 21	8,550 33	25,840 06
New Brunswick	.....	62,919 42	4,506 72	42,051 85	109,477 99
Quebec	.....	203,775 92	19,470 47	161,997 68	385,244 07
Ontario	.....	783,510 91	250,072 89	619,597 00	1,653,180 80
Manitoba	.....	86,909 36	8,523 86	67,814 93	163,248 15
Saskatchewan and Alberta	.....	202,188 67	8,307 74	72,336 42	282,832 83
British Columbia	.....	136,695 55	9,793 03	53,598 20	200,086 78
Yukon Territory	.....	434 00	.....	75,540 07	75,974 07
Public Buildings, generally	.....	.....	41 80	44,092 55	44,134 35
Totals, Harbours, Rivers, &c.					
Nova Scotia	376,237 22	308,865 21	33,985 77	2,873 33	721,961 53
Prince Edward Island	36,358 55	40,380 70	11,825 23	3,700 75	92,265 23
New Brunswick	724,447 83	334,656 11	6,656 40	7,667 39	1,073,427 73
Quebec	498,369 04	819,068 72	52,645 17	57,406 14	1,427,489 07
Ontario	1,782,588 42	727,540 90	37,077 15	37,285 65	2,584,492 12
Manitoba	31,921 64	73,800 62	.....	15,749 36	121,471 62
Saskatchewan and Alberta	34,432 84	34,045 23	.....	10,379 96	78,858 03
British Columbia	245,171 58	122,261 84	2,621 47	24,058 58	394,113 47
Yukon Territory	.....	404 11	.....	.....	404 11
Harbours and Rivers, generally	4,856 60	.....	.....	210,103 42	214,960 02
Totals, dredges and dredging plant	.....	549,461 49	187,358 40	.....	736,819 89
" slides and booms	.....	84,267 89	11,875 94	94,043 94	190,187 77
" roads and bridges	.....	76,326 09	5,227 81	8,507 59	90,061 49
" telegraph lines	.....	135,523 44	.....	432,970 04	568,493 48
" miscellaneous	.....	208,858 34	.....	212,505 74	421,364 08
Grand totals of expenditure	3,734,383 72	5,097,001 79	664,127 51	2,311,522 40	11,807,035 42

PART II—STATEMENT B—SHOWING the Cost of the following Service for each Public Building, &c., (the total for each Province being carried into statement 'A').

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
Nova Scotia.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Amherst post office, &c	.....	475 07	282 75	598 19	16 00	1,372 01
Annapolis post office, &c	.....	420 06	211 30	147 00	40 00	818 36
Antigonish post office, &c	.....	484 96	189 68	267 50	30 00	972 14
Arichat post office, &c	.....	166 17	135 50	93 89	.....	395 56
Baddeck post office, &c	.....	316 31	160 50	44 50	.....	521 31
Bridgewater post office	.....	437 56	258 07	281 73	34 09	1,011 45
Dartmouth post office	.....	317 81	87 80	127 74	30 00	563 35
Canso post office, &c	.....	451 93	320 00	220 50	.....	992 43
Digby post office, &c	.....	438 95	235 37	454 06	64 00	1,192 38
Glace Bay post office	.....	670 20	215 53	350 30	22 00	1,258 03
Guysboro' post office, &c	.....	130 82	220 25	223 49	.....	574 56
Halifax Asst. Receiver General's Office	1,210 00	.....	32 75	77 90	.....	1,320 65
" Appraiser's Office (Exam. W. H.)	1,000 00	720 60	194 74	86 36	.....	2,001 70
" custom house (new)	35 83	3,654 19	899 01	3,407 22	.....	7,996 25
" Dominion building (post office)	.....	2,568 45	663 39	55 36	.....	3,287 20
" immigrant shed	.....	680 00	881 55	2,110 80	.....	3,672 35
" immigration detention building (Trachoma)	.....	.....	885 08	255 07	.....	1,140 15
Inverness post office, &c	.....	439 42	63 75	365 25	45 00	913 42
Kentville, post office, &c	.....	406 41	188 05	253 80	50 00	898 26
Liverpool post office, &c	.....	453 64	180 00	145 86	18 00	797 50
Lunenburg post office, &c	.....	464 70	215 50	311 80	59 00	1,051 00
New Glasgow post office, &c	.....	470 99	289 27	724 83	100 00	1,585 09
North Sydney post office, &c	.....	425 67	230 55	848 35	32 00	1,536 57
Pictou custom house	.....	18 66	243 87	30 84	50 00	343 37
" post office	.....	681 08	202 30	298 03	50 00	1,231 41
Springhill post office, &c	.....	499 26	272 40	408 73	30 00	1,210 39
Shelburne post office	.....	451 61	205 55	302 10	.....	959 26
Sydney post office	.....	464 41	202 00	1,224 67	58 00	1,949 08
" Ry. M. C. R	.....	110 00	.....	.....	.....	110 00
" Mines post office, &c	.....	449 25	421 64	568 84	30 00	1,469 73
Truro post office, &c	.....	423 11	395 38	514 88	30 00	1,363 37
Westville post office	.....	450 79	323 55	322 90	21 00	1,118 24
Windsor post office, &c	.....	445 55	260 05	207 00	25 00	937 60
Yarmouth post office, &c	.....	521 80	259 20	959 46	72 00	1,812 46
Total for Nova Scotia	2,245 83	19,109 43	9,826 33	16,288 95	906 09	48,376 63
Prince Edward Island.						
Charlottetown Dominion building	22 00	2,900 90	1,021 70	1,568 23	225 00	5,737 83
" engineer office	72 00	12 00	.....	.....	.....	84 00
" experimental farm	.....	.....	.....	5 12	.....	5 12
Montagne post office, &c	.....	169 56	182 42	77 23	.....	429 21
Georgetown post office	24 00	126 15	160 60	51 83	.....	362 58
Souris post office, &c	.....	383 85	257 45	104 05	.....	745 35
Summerside post office, &c	.....	472 46	376 44	299 34	38 00	1,186 24
Total for Prince Edward Island	118 00	4,064 92	1,998 61	2,105 80	263 00	8,550 33
New Brunswick.						
Bathurst post office, &c	.....	464 01	305 90	314 30	.....	1,084 21
Campbellton post office, &c	.....	412 93	190 30	72 60	21 50	697 33
Carleton, St. John West post office, &c	.....	406 68	103 00	203 05	.....	712 73
Chatham post office, &c	.....	328 19	273 49	578 09	15 00	1,194 77
Dalhousie post office, &c	.....	410 21	258 60	38 40	26 00	733 21
Fredericton post office, &c	.....	533 94	350 73	966 21	29 50	1,880 38
Grand Falls post office	120 00	.....	.....	.....	.....	120 00
Marysville post office, &c	.....	152 00	188 75	51 80	.....	392 55
Moncton post office, &c	.....	471 55	307 41	746 97	134 00	1,659 93

PART II—STATEMENT B—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
New Brunswick—Concluded.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Newcastle post office, &c	.....	416 56	259 60	376 35	35 00	1,087 51
Richibucto post office, &c	.....	399 96	238 91	254 76	.....	893 63
St. John custom house	89 50	2,765 99	1,873 85	659 73	1,676 26	7,065 33
" cattle quarantine	978 50	748 00	.....	.....	18 00	1,744 50
St. John detention hospital	1,989 28	678 00	292 95	67 08	93 50	3,120 81
" immigrant building	1,052 66	1,430 00	1,605 87	607 82	187 17	4,883 52
" post office	22 08	2,731 85	731 83	3,338 14	1,312 57	8,136 47
" Partridge Island	.....	.....	.....	.....	304 52	304 52
" savings bank	.....	3 90	225 53	84 75	24 27	338 45
St. Leonard immigrant shed	14 00	.....	.....	.....	.....	14 00
Tracadie Lazaretto	.....	720 00	1,575 83	.....	.....	2,295 83
St. Stephen post office, &c	.....	507 71	157 60	524 82	48 00	1,237 53
" immigrant shed	100 00	.....	13 50	.....	.....	113 50
Sussex post office, &c	.....	406 96	377 75	152 38	50 00	987 09
Woodstock post office, &c	.....	524 56	337 34	458 15	34 00	1,354 05
Total for New Brunswick	4,366 02	14,513 00	9,668 14	9,495 40	4,009 29	42,051 85
Quebec.						
Acton Vale post office	.....	456 05	234 34	248 23	24 00	962 62
Aylmer post office	.....	127 79	191 08	103 32	24 75	446 94
Berthierville post office	.....	10 20	298 43	103 38	12 60	424 61
Black Lake post office	70 00	.....	.....	.....	.....	70 00
Buckingham post office	.....	130 80	235 90	96 30	37 20	500 20
Chicoutimi post office, &c	50 00	544 26	271 50	447 49	225 00	1,538 25
" telegraph supt's	74 08	.....	.....	.....	.....	74 08
Coaticook post office, &c	.....	418 91	6 00	262 02	50 00	736 93
Cookshire post office	.....	432 96	480 35	139 12	16 00	1,068 43
Drummondville custom house	.....	432 97	204 88	189 35	32 45	859 65
Dundee custom house	.....	.....	93 50	51 17	.....	144 67
Fraserville post office, &c	.....	470 42	520 00	214 56	250 00	1,454 98
Granby post office, &c	.....	334 29	156 00	216 92	150 00	857 21
Hochelaga post office	.....	263 92	219 54	271 29	68 87	763 62
Iberville post office, &c	.....	482 30	86 04	44 41	12 00	624 75
Hull post office	.....	154 25	378 56	558 86	253 35	1,345 02
Isle Verte engineer's office	91 00	.....	.....	.....	.....	91 00
Joliette post office	.....	418 41	236 05	126 00	108 00	888 46
Knowlton post office	.....	184 72	197 51	171 75	16 00	569 98
Lachine post office	.....	115 46	168 60	189 17	9 56	482 79
Lachute post office	.....	427 21	156 24	447 96	42 50	1,073 91
Laprairie post office	.....	162 78	170 16	41 55	45 00	419 49
L'Assomption post office	.....	321 48	145 14	163 83	50 00	680 45
Lévis post office, &c	.....	551 07	497 95	453 38	250 00	1,753 00
Longueuil post office	.....	321 40	119 05	114 19	41 13	595 77
Magog post office	.....	426 04	313 42	199 94	78 56	1,017 96
Montmagny post office	.....	419 82	149 00	195 13	50 00	813 95
Montmagny engineer	70 00	.....	27 75	.....	.....	97 75
Montreal Board of Trade building	322 00	.....	.....	11 67	12 61	346 28
" custom house	17 50	4,383 19	1,141 84	1,186 24	346 35	7,075 12
" " Canal office	.....	.....	.....	40 34	3 88	44 22
" Dominion public buildings	17 50	882 87	.....	.....	.....	900 37
" Merchants bank building	312 84	.....	.....	.....	11 06	323 90
" engineer's office	1,154 84	.....	.....	.....	41 00	1,195 84
" examining warehouse	72 50	13,433 74	1,599 77	3,451 59	1,082 74	19,640 34
" express custom	.....	856 64	729 54	643 83	227 34	2,457 35
" immigration office	2,905 87	.....	436 64	237 73	165 38	3,745 62
" inland revenue office	.....	631 68	362 80	202 80	99 97	1,297 25
" military stores	2,500 00	.....	.....	.....	70 00	2,570 00
" post office (Main)	104 49	22,698 16	3,549 43	13,859 18	1,319 26	41,530 52
" " Westmount	1,200 00	.....	.....	.....	15 60	1,215 60
" Station A (Wellington St.)	.....	.....	.....	4 29	.....	4 29

PART II.—STATEMENT B.—EXPENDITURE—*Continued*,

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
Quebec—Concluded.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Montreal Station Windsor	213 00					213 00
" " B (St. Catherine St.)		1,184 14	331 46	858 83	323 07	2,697 50
" " C (St. Catherine St.)	833 34	643 34	267 49	751 66	96 09	2,591 92
" " D	120 00	621 01	315 99	203 51	95 12	1,355 63
" " E. post office		163 34	220 77	395 45	19 96	799 52
" St Cunegonde post office	1,750 00					1,750 00
Nicolet post office		519 96	197 82	169 46	61 00	948 24
Nominingue immigrant building		300 00	147 00	28 45		475 45
Pierreville post office		221 68	117 75	25 83	15 00	380 26
Peribonka immigrant building		300 30	82 50	6 15		388 95
Plessisville		130 35	246 25	167 40	12 50	556 50
Quebec citadel buildings	34 00	583 49	54 00	108 58		780 07
" culler's office		543 05	303 43			846 48
" custom house		634 00			800 00	1,434 00
" engineer's office	208 50	60 00				268 50
" examining warehouse		1,581 32	808 75	369 52	450 00	3,209 59
" immigration building	500 00		608 91	1,148 63	375 37	2,632 91
" inland revenue	270 00					270 00
" interior department	350 00					350 00
" observatory				20 08	62 00	82 08
" post office	309 00	6,196 45	1,438 27	894 86	750 00	9,588 58
" marine and fisheries			63 96			63 96
" weights and measures	810 00					810 00
" Queen's wharf			320 12	38 59	1,500 00	1,858 71
" trachoma hospital	56 00		812 41	203 95		1,072 36
" St. Roch		399 36	228 78	183 85		811 99
" St. Sauveur	400 00	150 00			24 50	574 50
Richmond post office, &c.		502 81	268 89	388 26	25 00	1,184 96
Rimouski post office, &c		287 37	251 64	263 44	75 00	877 45
Roberval immigration shed		300 00	26 25	279 79	100 00	706 04
Sherbrooke post office, &c.		721 88	449 03	449 96	50 00	1,670 87
Sorel post office, &c.		566 15	393 66	730 87	255 55	1,946 23
St. Anne de Bellevue engineers	25 00					25 00
St. Eustache post office, &c.	144 00			62 18		206 18
St. Henri post office, &c.			132 00	92 38	32 30	256 68
St. Hyacinthe post office, &c		640 03	164 38	505 08	150 00	1,459 49
" Inland Revenue office		413 46	173 38	40 20	100 00	727 04
St. Anne de Bellevue post office	100 00					100 00
St. Jérôme post office, &c.		409 56	290 00	117 54	54 60	871 10
St. John's post office, &c.		263 11	197 36	219 10	50 00	729 57
" custom house		349 92		19 45	75 00	444 37
St. Louis du Mile End post office		383 68	24 90	73 27	14 55	496 40
St. Gabriel de Brandon post office	200 00		45 00	18 00		263 00
Terrebonne post office, &c.		300 35	145 00	132 77	15 00	593 12
Thetford Mines post office, &c.		171 49	224 11	250 95	26 00	672 55
Trois Pistoles post office	125 00					125 00
Three Rivers clerk of works	11 00					11 00
" engineers	278 75					278 75
" post office	39 00	1,081 60	261 56	459 98	49 64	1,891 78
" inland revenue				0 40		0 40
Valleyfield post office, &c		431 50	367 47	297 29	102 50	1,198 76
Victoriaville post office, &c.	1 00	135 06	255 92	222 60	25 00	639 58
West Farnham, post office		304 91	107 00	101 20	20 00	533 11
Total for Quebec	15,740 21	71,928 46	23,720 22	34,987 10	11,046 31	157,422 30
Ontario.						
Alexandria post office, &c.		501 42	207 78	227 30	6 00	942 50
Almonte post office, &c.		434 07	215 05	74 89	95 60	819 01
Amherstburg post office, &c.		419 91	191 40	168 50	35 00	814 81
Arnprior post office, &c.		456 56	336 90	597 06	32 41	1,422 93
Barrie post office, &c.		439 69	274 26	194 74	50 00	958 69

PART II—STATEMENT B—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers	Heating.	Lighting.	Water.	Total.
Ontario—Continued.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Belleville post office, &c.		731 76	598 57	1,210 08	83 25	2,623 66
" armoury.				2 65		2 65
Berlin post office, &c.		513 22	601 27	453 04	17 16	1,584 69
Bowmanville post office, &c.		435 95	159 38	120 35	10 00	725 68
Bleinhein post office	50 00					50 00
Brampton post office, &c.		418 46	215 20	318 06	25 00	976 72
Brantford post office, &c.		616 15	451 86	345 48	56 88	1,470 37
Bridgeburg post office, &c.		344 35	158 00	81 95	20 00	604 30
Brockville post office, &c.		685 98	451 20	704 53	170 00	2,011 71
Carleton Place post office, &c.		310 00	148 50	111 95		570 45
Cayuga post office, &c		67 02	55 07	79 14		201 23
Chatham post office, &c.		567 10	243 94	126 71	14 20	951 95
Clifton post office, &c.					6 25	6 25
Clinton post office, &c		207 17	231 71	168 70	3 00	610 58
Cobourg post office, &c.		461 40	236 37	585 45	34 12	1,317 34
Cornwall post office, &c.		505 34	299 00	1,049 25	75 00	1,928 59
Deseronto post office, &c.		497 25	280 00	239 34	39 00	1,055 59
Dundas post office	725 00	49 92	45 50	65 65	3 33	889 40
Fort William post office		535 57	590 50	601 23	90 00	1,817 30
" engineer's office	600 00	0 60				600 60
Galt post office, &c.		452 60	186 60	99 35	30 35	768 90
Gananoque custom house			159 60		12 70	172 30
" post office		15 30	111 95	247 95	15 68	390 88
Goderich post office, &c.		417 31	228 31	183 25	60 00	888 87
Glencoe, post office		439 17	92 40	116 30	1 00	648 87
Guelph post office, &c.		628 13	513 72	861 55	29 70	2,033 10
Hamilton customs exam. warehouse		655 18		202 18	43 90	901 26
" inland revenue office				77 84	32 90	110 74
Hamilton post office		3,092 70	1,182 10	1,492 83	768 20	6,535 83
" " station B.	840 00			44 40	10 80	895 20
Hawkesbury post office, &c.		443 91	222 60	155 51	18 00	840 02
Ingersoll post office, &c.		518 09	342 54	134 35	15 58	1,010 56
Kenora post office, &c.		463 71	587 85	325 00	70 76	1,447 32
Kingston custom house		284 74	360 35	153 90	59 25	858 24
" ordnance store	1,000 00					1,000 00
" inland revenue office	2,140 36	640 89	400 90	75 50	75 65	3,333 30
" post office		666 56	457 50	936 15	59 50	2,119 71
London custom house		1,111 84	973 80	719 63	91 91	2,897 18
" engineer's office	666 00					666 00
" post office		1,713 64	785 57	1,878 63	70 00	4,447 84
Kincardine post office		221 47	228 95	73 75	14 75	538 92
L'Orignal post office	125 00					125 00
Leamington post office			236 25			236 25
North Bay post office, &c.		867 05	486 24	896 64	37 00	2,286 93
Lindsay post office		411 86	197 50	113 20	30 00	752 56
Napanee post office, &c.		478 71	340 30	210 55	73 75	1,103 31
Niagara Falls post office, &c		481 04	240 34	331 32	18 75	1,071 45
Orangeville post office, &c.		427 01	207 38	160 38	20 00	814 77
Orillia post office, &c.		371 07	266 84	97 88	32 50	768 29
Markman post office, &c.		621 65	14 40	80 09	2 75	718 89
Oshawa post office, &c.		441 14	229 30	239 20	13 53	923 17
Owen Sound post office, &c.		458 66	527 44	276 26		1,262 36
Ottawa archives building		1,321 92	810 79	529 50		2,662 21
" astronomical observatory	175 00	1,495 00	555 38	608 00		2,833 38
" bacteriological laboratory			177 00	254 00		431 00
" experimental farm			1,769 19	325 35		2,094 54
" fuel testing building (Department Mines)		330 00	94 25	86 67		510 92
" geological museum (old)		660 00	418 73	973 12		2,051 85
" " (Victoria memorial)		4,030 60	5,481 00			9,511 60
" Major's Hill Park green house		330 00	476 00	25 00		831 00
" National Art Gallery & Fisheries museum			210 00	298 00		508 00

PART II—STATEMENT B—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers	Heating.	Lighting.	Water.	Total.
Ontario—Concluded.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ottawa naval service buildings	.....	990 00	491 49	48 50	.....	1,529 99
" parliamentary and departmental buildings	10 00	50,472 60	38,538 99	35,585 85	.....	124,607 44
" post office	.....	3,564 60	1,254 89	1,547 50	.....	6,366 99
" printing bureau	.....	8,246 59	11,774 71	3,515 40	.....	23,536 70
" royal mint	.....	990 00	2,806 29	274 10	.....	4,070 39
" supreme court	.....	1,380 00	1,032 87	401 50	.....	2,814 37
" workshops (D. P. W.) &c	.....	330 00	1,277 00	550 00	.....	2,157 00
" sundry rented buildings	153,284,39	12,588 26	16,758 44	6,644 99	.....	189,276 08
Paris post office, &c	.....	410 16	.....	82 12	50 20	542 48
Park Hill post office	.....	127 59	88 67	80 99	.....	297 25
Pembroke post office, &c	.....	425 51	288 29	204 00	36 00	953 80
Peterboro' custom house	.....	319 00	198 63	164 20	50 00	731 83
" post office	.....	513 91	264 93	225 45	75 00	1,079 29
Petrolea post office, &c	.....	423 60	225 16	302 18	35 82	986 76
Picton post office, &c	.....	432 06	243 00	149 43	33 75	858 24
Port Arthur post office, &c	.....	435 51	291 50	375 60	116 01	1,218 62
" immigrant building	.....	.....	.....	20 45	9 50	29 95
" engineer's office	492 00	.....	.....	3 00	.....	495 00
Port Colborne post office	.....	395 04	56 70	130 55	15 00	597 29
Port Burwell engineer's office	60 00	.....	.....	.....	.....	60 00
Port Hope post office, &c	.....	424 26	268 50	714 15	12 70	1,419 61
Prescott custom house	.....	.....	152 50	8 09	30 00	190 59
" post office	.....	489 54	191 50	193 75	90 00	964 79
Renfrew post office	.....	456 71	290 64	301 30	25 00	1,073 65
Sandwich post office, &c	.....	319 28	93 95	120 58	9 45	543 26
Sarnia armoury	.....	19 40	.....	.....	.....	19 40
Sarnia post office, &c	.....	595 09	317 80	362 88	44 00	1,319 77
Sault Ste. Marie immigration building	.....	.....	15 00	.....	.....	15 00
Sault Ste. Marie post office, &c	25 00	664 06	90 00	731 79	62 95	1,573 80
Smith's Falls	.....	415 06	198 78	188 45	63 75	866 04
Simcoe post office	.....	437 06	100 50	110 85	20 00	668 41
Stratford post office, &c	.....	681 79	390 25	330 56	92 50	1,495 10
Strathroy post office, &c	.....	434 65	253 50	201 84	19 80	909 79
St. Catharines post office, &c	.....	432 51	436 50	361 20	78 09	1,308 30
St. Mary's post office, &c	.....	439 99	264 10	372 03	34 75	1,110 87
St. Thomas post office, &c	.....	444 87	293 00	235 79	9 29	982 95
Toronto Assistant-Receiver General's and inland revenue offices	.....	1,029 88	423 32	265 42	20 93	1,740 05
" custom house	.....	4,062 89	905 18	545 16	69 48	5,582 71
" engineer's office	1,466 20	.....	.....	98 22	.....	1,564 42
" examining warehouse	15 00	5,190 03	1,618 79	369 90	67 70	7,261 42
" immigrant sheds	1,000 00	.....	.....	.....	.....	1,000 00
" steamboat inspector's office	620 00	.....	.....	.....	.....	620 00
" post office	.....	10,895 26	1,544 88	5,801 40	156 90	18,398 44
" " station A	2,551 61	2,324 00	6 00	2,040 41	.....	6,922 02
" " " B	1,360 00	600 32	4 85	176 80	2 00	2,143 97
" " " C	.....	200 21	119 92	425 00	14 98	760 11
" " " D	.....	576 11	217 31	378 75	11 37	1,183 54
" " " E	720 00	34 48	111 93	172 36	.....	1,038 77
" " " F	67 00	998 10	370 72	401 90	18 69	1,856 41
" " " G	880 00	250 72	1 78	280 47	.....	1,412 97
Trenton post office	.....	473 46	261 25	546 89	75 00	1,356 60
Walkerton post office, &c	.....	404 96	220 43	216 85	38 00	880 24
Whitby post office	.....	287 36	180 32	179 15	9 50	656 33
Windsor post office, &c	.....	951 91	191 31	712 38	99 79	1,955 39
Wingham post office	.....	199 92	207 35	190 29	23 80	621 36
Welland post office	.....	495 56	164 33	268 02	22 50	950 41
Woodstock post office, &c	.....	622 34	350 54	529 26	39 20	1,541 34
Total for Ontario	168,872 56	151,586 05	111,413 32	88,946 98	4,257 91	525,076 82

PART II—STATEMENT A—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
Manitoba.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Brandon experimental farm			259 08	59 17		318 25
" immigrant building			356 52	193 20	28 01	577 73
" post office, &c.		883 00	1,032 69	1,170 82	38 22	3,124 73
Dauphin immigration station			120 00			120 00
" post office, &c.		651 50	898 97	313 08		1,863 55
Emerson post office		553 13	340 72	69 95	1 00	964 80
Neepawa post office, &c.		706 90	615 13	96 90		1,418 93
Portage la Prairie post office, &c.		560 50	543 73	338 61	35 40	1,478 24
St. Boniface post office		687 35	528 08	91 04	2 71	1,309 18
Selkirk post office		745 60	571 95	143 48	1 05	1,462 08
Virden immigration building	250 00		31 00			281 00
Winnipeg custom house		844 35	215 48	67 05	32 17	1,159 05
" express parcels office	500 00			30 75		530 75
" Dominion public buildings		12 00	21 00			33 00
" engineer's office	860 85	2 25				863 10
" examining warehouse		2,837 76	3,253 60	156 37	81 59	6,329 32
" " (old)		50	210 61	57 50	8 63	277 24
" immigration building			5,499 91	1,303 70	669 09	7,472 70
" Indian Department	180 00					180 00
" Inland Revenue	1,980 00			8 00		1,988 00
" weights and measures	560 00					560 00
" post office (old)		2,850 05	1,822 02	557 36	61 99	5,291 36
" post office (new)	31 00	12,012 56	5,037 17	7,411 81	584 14	25,076 68
" post office sorting room, C.P.R. station	2,050 00	32 25				2,082 25
" postal station						
" " "B"		733 65	676 69	179 70	14 62	1,604 66
" Ry. Commissioner's office	420 00	65 00		14 16		499 16
Total for Manitoba	6,831 85	24,178 35	22,034 35	12,262 59	1,558 62	66,865 76
Saskatchewan and Alberta.						
Athabaska Landing	45 00					45 00
Battleford Dominion lands office	900 00					900 00
Bassano immigration station			6 57			6 57
Brooks " "			7 00			7 00
Bruce " "				8 25		8 25
Biggar immigration building			47 99	1 75	2 55	52 29
Calgary custom house	4,145 00			55 46		4,200 46
" engineer's office	523 50			8 82		532 32
" irrigation commissioner's	250 00					250 00
" immigrant building	19 00		95 85	36 63	40 00	191 48
" Inland Revenue	360 00					360 00
" post office, &c.		3,010 26	1,939 87	4,686 45	300 00	9,936 58
Irvine immigrant hall	240 00					240 00
Edmonton express parcel office	1,305 00	68 00				1,373 00
" Dominion lands and registry office	3,300 00	415 30	42 39	296 89	7 00	4,061 58
" engineer's	124 00					124 00
" immigrant shed	1 00		209 25	78 70	195 47	484 42
" weights and measures	180 00					180 00
" post office, &c.		3,906 36	945 57	1,481 49	71 72	6,405 14
" " (old)	2,700 00	703 73	185 92	139 43	14 45	5,743 53
Estevan Dominion lands office	268 39	449 40	254 30	214 77	24 75	1,211 61
Entwistle immigration building	140 00					140 00
Humboldt Dominion lands office	900 00		40 00			940 00
Gretna immigration building			4 25			4 25
Indian Head experimental farm			432 72	157 95		590 67
" forestry station	150 00		630 75	22 12	112 24	915 11
Girouard Dominion lands	295 00		70 00			365 00
Lacombe experimental Farm			175 95	79 34		255 29
Gull Lake immigration building	175 00		18 37			193 37

PART II—STATEMENT B—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
Saskatchewan and Alberta—Con.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Lethbridge court house and custom house					25 00	25 00
" immigration building			237 50	118 80	100 00	456 30
" experimental farm			120 60			120 60
" Dominion lands		10 30	310 00	150 61		470 91
" post office		647 00	301 95		125 00	1,073 95
Herbert immigration building	150 00		9 00			159 00
Medicine Hat post office, &c		975 53	92 17	212 73	50 00	1,330 43
Lloydminster Dominon lands			10 00			10 00
McLeod custom house			204 22	72 16	30 16	306 54
Lloydminster immigration			577 90	33 33		611 23
North Battleford immigrant building	195 00		143 70	26 16	52 09	416 95
North Portal immigration building			66 90		26 25	94 15
Prince Albert Dominion lands and registry office		7 95		8 75		16 70
Prince Albert immigrant shed			23 75	20 31	43 05	87 11
" post office		1,678 28	1,850 41	1,043 22	94 79	4,666 70
Philipps immigration building			25 25			25 25
Red Deer Dominion lands office, P.B.		754 00	272 85		29 00	1,055 85
Macklin immigration building			6 85			6 85
Maple Creek post office		219 63	451 87	41 50	73 25	786 25
" immigration building			35 40	1 55		36 95
Regina Dominion lands and registry office		1,330 15	584 25	174 19	60 00	2,148 59
" engineers	17 50					17 50
" immigrant building			381 48	29 02		410 50
" post office, &c	17 50	2,096 10	1,684 16	1,161 93	63 40	5,023 09
" " old		40 00				40 00
Rosthern Dominion land	120 00					120 00
" experimental farm			394 49			394 49
Saskatoon immigrant shed			38 45			38 45
" Dominion lands	2,200 00					2,200 00
" post office, &c		1,040 90	787 25	501 58	12 25	2,341 98
Strathcona immigrant shed	108 00		206 33	44 50	41 30	400 13
Vanda immigrant shed	100 00					100 00
Vegreville immigrant building	320 00					320 00
Vermilion immigrant building			107 00	5 05		112 05
Moosejaw Dominion lands office	2,070 00			69 95		2,139 95
" immigrant building	150 00		122 58	42 46	60 50	375 54
" inland revenue	600 00				7 50	607 50
" post office	10 00	694 90	494 21	712 69	80 83	1,992 63
" railway mail service	160 00					160 00
Wainwright immigrant building			39 46	3 95		43 41
Yorkton Dominion lands office	75 00		57 00			132 00
" immigrant building				140 00		140 00
" post office		414 35	403 93	202 52	40 07	1,060 87
Welkie immigrant building	1 00		152 70	13 85	8 40	175 95
Sedgwick immigrant building	420 00		45 00	3 20		468 20
Stettler immigrant building			73 71			73 71
Swift Current Dominion lands	990 00					990 00
" immigrant building	2 00		14 40	1 80	13 00	31 20
Total for Sask. and Alberta	23,727 89	18,462 14	15,395 02	12,003 71	1,804 02	71,392 78
British Columbia.						
Agassiz experimental farm			83 05			83 05
Atlin post office		173 60	85 00	69 00	48 00	375 60
Cumberland post office		687 40	246 00	306 00	45 00	1,284 40
Esquimalt custom house			48 00			48 00
Fernie post office		1,041 00	454 27	240 57	46 80	1,782 64

PART II—STATEMENT B—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting	Water.	Total.
Saskatchewan and Alberta—Con.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Kamloops post office	.....	757 00	469 56	397 97	.....	1,624 53
Ladysmith post office	.....	687 20	105 18	106 73	22 00	921 11
Nanaimo post office, &c	.....	809 65	206 00	368 25	36 00	1,419 90
Nelson post office, &c.	.....	656 75	445 90	695 45	72 00	1,870 10
New Westminster Indian and Fisheries offices	.....	636 40	168 75	40 27	28 30	873 72
" post office, &c	.....	738 95	580 25	670 84	110 01	2,100 05
Revelstock timber public building.	124 00	30 00	.....	.....	0 80	154 80
Rossland post office, &c	.....	660 45	721 66	910 00	84 52	2,376 63
Vancouver examining warehouse.	2,250 00	.....	351 87	19 95	.....	2,621 82
" post offic, &c	.....	9,341 74	2,222 32	3,972 01	240 42	15,776 49
" " old	.....	158 65	483 13	218 99	82 00	942 77
" steamboat inspection office.	40 00	.....	.....	.....	.....	40 00
" Chinese isolation hospital	375 00	.....	.....	29 70	.....	404 70
Victoria marine and Indian office (old custom house)	.....	688 80	331 60	227 42	17 25	1,265 07
" Chinese hospital	.....	.....	116 25	.....	.....	116 25
" post office, &c	84 00	4,498 45	1,754 20	1,646 15	97 28	8,080 08
" old post office	.....	243 00	.....	.....	111 22	354 22
" hospital detention	.....	1 75	600 00	122 89	95 54	820 18
William's head quarantine station	.....	.....	6,812 52	.....	.....	6,812 52
Total for British Columbia	2,873 00	21,810 79	16,285 51	10,042 19	1,137 14	52,148 63
Yukon						
Dawson, sundry buildings (not apportioned)	.....	.....	.....	.....	.....	.....
Whitehorse post office, &c	.....	.....	.....	.....	.....	.....
Dominion buildings—generally	.....	.....	1,700 32	150 00	.....	1,850 32
Totals, generally	.....	.....	1,700 32	150 00	.....	1,850 32

PART II—STATEMENT C.—Showing the amounts loaned by Government under the authority of special Acts of Parliament, and upon the security of debentures of the borrowing corporation. The works upon which these funds are expended are of a quasi-public nature, and the several advances have been made upon the recommendation of the Honourable the Minister of Public Works, and after inspection by the Chief Engineer.

To whom Loaned.	Parliamentary Authority.	Purpose.	Amount.
Nil	.....	.....	

PART III

REPORT

ON

PUBLIC BUILDINGS THROUGHOUT THE DOMINION

FOR THE FISCAL YEAR ENDED MARCH 31, 1911.

BY THE

CHIEF ARCHITECT

PUBLIC WORKS, CANADA,
CHIEF ARCHITECT'S OFFICE,
OTTAWA, September 28, 1911

R. C. DESROCHERS, Secretary,
Department of Public Works.

SIR,—I am sending you herewith, annual report of works executed under this branch during the fiscal year ended March 31, 1911.

D. EWART,
Chief Architect.

PROVINCE OF NOVA SCOTIA.

AMHERST.

PUBLIC BUILDING.

The grades of the yard were reduced and that portion of yard adjoining main building and wing, on the north side, was laid with concrete.

The old stone fence and wooden gates on the main street have been removed.

The boundary fences have been repaired and strengthened.

The north entrance steps have been renewed in cement concrete.

New locks to all doors in caretaker's quarters.

Work supervised by D. A. Hewitt, architect of this branch .

ANNAPOLIS.

PUBLIC BUILDING.

Alterations made to entrance and internal doors, and upper glass panels substituted for the wooden panels removed. Repairs to the furniture of the working part of the post office and the soffits to main stairways.

Work supervised by D. A. Hewitt, architect, of this branch.

ANTIGONISH.

PUBLIC BUILDING.

A steel fire escape on rear of building was erected for the safety of the caretaker on the third floor.

Work supervised by D. A. Hewitt, architect, of this branch.

ARICHAT.

PUBLIC BUILDING.

A concrete annex was built adjoining the present basement in which is located an acetylene machine. The several floors of the post office building have been piped for gas and the offices supplied with gas fixtures for lighting purposes.

Work supervised by D. A. Hewitt, architect, of this branch.

BADDECK.

PUBLIC BUILDING.

The ground floor was laid in new hardwood. A movable winter porch was erected over the main entrance. In the basement, a bin was built in the boiler room adjoining the boiler, for the storage of coal.

Work supervised by D. A. Hewitt, architect, of this branch.

BRIDGEWATER.

PUBLIC BUILDING.

The clock tower has been lined with sheeting and prepared by the carpenter for the introduction of the "Smith" clock and its machinery and bell; the clock has been installed and has been giving satisfaction.

Work supervised by D. A. Hewitt, architect, of this branch.

CANSO.

PUBLIC BUILDING.

The tower clock was carefully cleaned and adjusted by the jeweller and is in good running order.

A new rear entrance to basement was built for the use of caretaker in removing ashes and receiving fire wood. For the storage of rain water from roof of building, a large brick cistern was built in the basement and is connected with the present hot air engine.

A steel fire-escape on rear of building was erected for the safety of caretaker and family.

DARTMOUTH.

PUBLIC BUILDING.

The old eave-troughs and down-spouts were removed. The wooden cornice rebuilt to grade properly to the outlets, and new copper troughs and conductors installed.

New hatch, adjoining flag pole, was made in the roof. Caretaker's dining room enlarged, papered and painted.

Work supervised by D. A. Hewitt, architect, of this branch.

DIGBY.

PUBLIC BUILDING.

A new system of electric lighting has been executed with conduit piping to all floors of the building, as shown by plans and specifications prepared by the Department.

Work supervised by D. A. Hewitt, architect, of this branch.

GLACE BAY.

PUBLIC BUILDING.

A new wooden, glass and wire partition was built to separate public corridor, leading from staircase hall to examining warehouse, from the working part of the post office. Slight changes made in the main post office screen and wickets.

A new entrance door in Customs Long room screen adjoining Collector's office.

Work supervised by D. A. Hewitt, architect, of this branch.

HALIFAX.

DOMINION BUILDING.

The steel specie vault has been constructed and completed according to plans and contract, for the Dominion Savings Bank, on the first floor.

Six treasure safes or lockers have been supplied and placed inside the specie vault.

The Bank screen, vault fittings and office furniture have been erected and completed so that the Bank is doing business in their new quarters.

Wash basin has been installed in the private office of the manager.

Both the freight and passenger elevators are in operation.

Work supervised by D. A. Hewitt, architect, of this branch.

IMMIGRATION BUILDING.

Offices have been built for the Telegraph Companies, and the United Steamships.

The present office of the Intercolonial Railway, Canada, and the Canada Northern Railway and Steamship Companies were remodelled.

An additional passageway for immigrants was made off the large detention or waiting-room, and desks provided for the examining immigration officials.

Work supervised by D. A. Hewitt, architect, of this branch.

DETENTION HOSPITAL.

Sundry additions to heating apparatus were installed.

The inside woodwork of all windows and doors was repaired by the carpenters, and painted.

The floor area lights were removed and the openings filled up with concrete similar to the floor structure of building, to permit of placing the radiators and to give more floor area in the corridors.

Benches and chairs were provided for the use of immigrants; twenty-five fly screens were made and placed in the lower section of windows.

Work supervised by D. A. Hewitt, architect, of this branch.

CATTLE QUARANTINE BUILDING.

A large underground cistern was constructed of concrete for the storage of rain water, conducted from roof by means of eave-troughs, down-pipes and drains into the cistern. The present force-pump was connected with the cistern.

The lot was partially cleared of stumps, under-brush and some of the surface stones.

Work supervised by D. A. Hewitt, architect, of this branch.

LIVERPOOL.

PUBLIC BUILDING.

New door from public post office lobby into staircase entrance hall has been cut through and completed.

Glass panels fitted to doors of offices on the first floor.

Work supervised by D. A. Hewitt, architect, of this branch.

NEW GLASGOW.

PUBLIC BUILDING.

New post office boxes and alterations made to P.O. screen. The ground floor was cleaned and kalsomined; glass panels put in entrance and vestibule doors, also to doors in caretaker's corridor, attic floor.

Work supervised by D. A. Hewitt, architect, of this branch.

NORTH SYDNEY.

PUBLIC BUILDING.

An addition to the Intercolonial railway shed, 30 by 60 feet on the land end at the harbour wharf, was built to provide accommodation for immigrants, first and second-class passengers, offices for immigration agent and examining immigration doctor, detention rooms for men and a separate room for women, also a lock-up room.

A louvre was built on roof to provide ventilation and light to the internal parts of the shed.

Extension of present corridor and to freight shed is carried through to the entrance doors for the use of passengers and the public.

Work supervised by D. A. Hewitt, architect, of this branch.

SHELBURNE.

PUBLIC BUILDING.

Concrete sidewalks to both of the main streets have been laid; stone retaining walls to the garden and a boundary wall, on John street, have been erected; the yard graded and sodded, and roadway gravelled.

The 'Evans' tower clock and bell, with all its appliances, has been completed and in running order for some months.

Work supervised by D. A. Hewitt, architect, of this branch.

SPRINGHILL.

PUBLIC BUILDING.

The caretaker's apartments were painted, papered and tinted; the heating furnaces were repaired, a chimney cap supplied, and repairs made to joinery and glazing.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

SYDNEY.

PUBLIC BUILDING.

The position of the dumb waiter running between post office work-room and customs parcels room has been changed to a more central location.

All doors on first-floor corridor have had the wooden upper panels removed and glass panels substituted.

The tower clock was cleaned and a special room made to receive the clock machinery below the dial room.

Work supervised by D. A. Hewitt, architect, of this branch.

SIDNEY MINES.

PUBLIC BUILDING.

Repairs of a minor nature in caretaker's quarters and basement of building.
Work supervised by D. A. Hewitt, architect, of this branch.

TRURO.

PUBLIC BUILDING.

Concrete footpath was laid on Lorne street and asphalt footpath and approaches on Prince street. The caretaker's apartments were tinted, papered and painted; the letter receiver was improved; the fence posts were renewed; an electric meter was supplied; the lighting system improved, and the roof was repaired.

Work done under the supervision of D. H. Waterbury, Superintendent Public Buildings, New Brunswick.

WINDSOR.

PUBLIC BUILDING.

Repairs to combination locks on vault doors of post office and customs long room.
Repairs to post office work-room furniture.
The introduction of glass panels to entrance and internal doors.
Work supervised by D. A. Hewitt, architect, of this branch.

YARMOUTH.

PUBLIC BUILDING.

New hot water heating boilers installed and the present system of piping attached to them.

Work supervised by D. A. Hewitt, architect, of this branch.

PROVINCE OF PRINCE EDWARD ISLAND.

CHARLOTTETOWN.

DOMINION BUILDINGS.

The local offices of the Marine Department were cleaned, tinted, painted and varnished, a ventilator was carried from caretaker's closet up to and through roof; burners, lamps, linoleum and blinds were supplied, and general repairs made to gas fitting, joinery, &c.

The grounds about the building were tended and improved.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

MONTAGUE.

PUBLIC BUILDING.

The external masonry was repointed; some broken bricks were removed and replaced by new; the entrance steps were removed and replaced by concrete steps; a concrete footpath was laid from the street landing; the outside w.c. building was re-shingled and repaired; a wooden porch was built at rear entrance; the hall and stairway were tinted and painted; the vestibule floor was relaid in hardwood; the smoke pipe was partially renewed and repairs made to pump, window sashes, chimney flue, joinery, &c.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

SOURIS.

PUBLIC BUILDING.

The halls, offices and the caretaker's apartments were tinted. A brick acetylene house was built in rear, furnished with a generator and the light installed throughout. A cesspool was built, a bulletin board supplied, new locks put on front doors and the joinery was repaired.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

PROVINCE OF NEW BRUNSWICK.

BATHURST.

PUBLIC BUILDING.

Hardwood floors were laid in P.O. lobby, vestibule and mail entrance. The exterior woodwork fences, gates and porches were painted and the interior tinted, painted and varnished. Concrete footpath was laid about building. The P.O. screen was altered and an additional section of letter boxes supplied and installed. A table

was supplied and repairs made to fixtures, floors, joinery generally, furniture and glazing.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

CAMPBELLTON.

PUBLIC BUILDING.

On July 12, 1910, the original public building erected in 1905-06 was destroyed by fire. Temporary wooden buildings, one for the post office and another for the caretaker were erected on the lot immediately opposite the burned building, and plans prepared by the department for reconstruction of the building.

On November 19, 1910, a contract for the reconstruction of the building on the old stone basement was entered into. It will have a frontage of 50 feet by a depth of 60 feet. There will be two stories of brick, on a stone brick-lined basement, surmounted by a wooden mansard attic. Excepting one partition on ground floor and the partitions in basement which are to be brick, and the floor in basement which is to be concrete, the floors, roof, partitions and stairs are to be of wood. Heating is to be by hot water and lighted by electricity.

In the basement are to be the heating furnaces, fuel and stores; the ground floor, excepting a space in rear 11 feet by 20 feet, for examining warehouse, is to be entirely for the post office; the first floor for the Customs and Inland Revenue offices, and the attic for the caretaker's quarters.

Plans, &c., prepared by this department.

Clerk of Works, John Quinn.

Contractor, James Reid.

CHATHAM.

ARMOURY.

On April 26, 1909, a building used as a public school on a site 300 feet square, situated on Henderson, Church and Sheriff streets, was purchased from the Highland Society of New Brunswick, for use as an armoury. The building is of brick on a stone foundation, measuring 55 feet in length by 50 feet in depth, having one and a half stories and basement.

The basement as rearranged has a shooting gallery, a waiting room, lavatory, a furnace room and a fuel room; the ground floor has a cadet's drill room, three armouries and two stairway halls, and the first floor has an officers', a band room and caretaker's apartments. After the building was acquired by the government, a drain was laid completely around the building and extended across the armoury lot to the sewer on Sheriff street, 450 feet in length; the external surface of the walls was repaired and pointed; the roof was steel shingled; the chimney was reinforced and in part rebuilt; the floors were jacked up, levelled and further supported, and covered with new flooring, hardwood on ground floor, stairs and halls and spruce on first floor; the large south room on ground floor was partitioned off for armouries, that above for caretaker's apartment, and the basement into shooting gallery, waiting room, lavatory, store room, furnace room and fuel room; all the ceilings and part of the walls were replastered; the woodwork throughout was repainted; a hot water heating system was installed; kitchen and bathroom plumbing and fixtures were put in the caretaker's quarters; the building was wired and supplied with the necessary fixtures for electric lights; new windows and new stairs were provided in basement; the ground floor vestibule was lathed and plastered, and a concrete walk was laid from the entrance to the street line.

Plans and specifications prepared and work supervised by Geoffrey Stead, District Engineer, Department of Public Works.

CHATHAM

MIDDLE ISLAND QUARANTINE.

Keeper's residence, two hospitals and office were painted, a concrete cellar built under keeper's residence, a stair was built, well cased, drain improved and sundry repairs and improvements effected.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

FREDERICTON.

PUBLIC BUILDING.

Concrete footpath with combined curb and gutter was laid about boundaries of lot and a concrete driveway with catch basins, &c. The lot was graded, concrete walks and gutters were laid and the side of streets in front of government property was paved. The plumbing was altered and improved; a new closet and drain to sewer on Queen Street were put in; some shelving was put up; the front doors were supplied with spring and check, and repairs were made to doors, roof gutters, porch, electric lighting, &c.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

HARTLAND.

POST OFFICE AND ARMOURY.

On 19th November, 1910, a contract was entered into for the construction of this building which is to have a frontage of 42 feet on Main street by a depth of 46 feet. It is to have two stories in brick on a stone basement; the floors, partitions, stairs and roof being wood excepting that the basement floor in concrete and the basement partition are to be brick. There is to be a four story brick tower on the right anterior angle of the building.

The ground floor is to contain the post office, stairway hall, lavatory and mail lobby; the first floor an assembly room, a C. O. room, an armoury and a lavatory.

Plans &c., prepared by this department.

Contractors, W. J. Smalley and Chas. J. Smalley.

Clerk of Works, L. E. McFarland.

MONCTON.

ADDITION TO POST OFFICE, PUBLIC BUILDING.

On 28th November, 1910, a contract was entered into for the construction of a one story brick adjunct on a stone foundation but without basement, 26 by 36 feet, on plan, to be erected at the rear of the post office. A portion of the rear wall of the ground floor of the building, where the adjunct abuts the rear wall, is to be removed and the superincumbent portion of rear wall supported on steel beams. The walls, roof, floors, &c., are constructed of similar materials to the original building.

Plans, &c., prepared by the department.

Architect in charge, W. C. Barnes.

Contractors, O. J. Dunham and P. W. Leblanc.

PARTRIDGE ISLAND, ST. JOHN.

QUARANTINE STATION.

Tinting, painting and papering and repairs to heating were effected at doctor's residence; glazing and minor repairs to steward's residence; painting and papering to caretaker's residence; smoke pipe was renewed at disinfecting house and detention house, and repairs were made to Building C, detention houses, disinfecting house, shore landing gangway, old hospital, gas plant, &c.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

ST. JOHN WEST.

POST OFFICE.

Some tinting was done, the chimney was improved, doors were fitted, locks and knobs were supplied and repairs were made to plastering, joinery, plumbing, flag pole, iron gate, glazing, roof covering, eaves troughs and conductors, gates, &c.

Work supervised by D. H. Waterbury, Superintendent Public Buildings, New Brunswick.

ST. JOHN.

ARMOURY.

On 19th November, 1910, a contract was entered into for the construction of the building at the intersection of Carmarthen and Sheffield streets, beside the existing drill shed, to have a frontage of 172 feet along the west side of Carmarthen street by a depth of 230 feet along the south side of Sheffield street. The drill hall will reach the entire length from east to west 199 feet and occupy the middle 80 feet of the breadth of the building. Along the entire north side, and projecting 14 feet beyond at both ends, is to be a two story and basement adjunct, but, the south side is free excepting where, at each end, 47 feet in length, it is abutted by a similar adjunct similarly projected beyond the end of drill hall; the free outer wall of the drill hall being pierced for windows.

In the basement below the drill hall are to be bowling alleys, shooting gallery, an artillery gun room, an A. S. C. wagon and harness room, a bearers wagon and harness room and a bearers' armoury. In the basement, adjoining the drill hall on the north side, commencing at the east end, there are to be two store rooms, an officers' bath room, an officers' lavatory, a fuel room, the boiler room, the fan room, a men's lavatory, three armouries, three store rooms, a vestibule, a passage and three C. O rooms; on the south side in the east wing, four store rooms, a fuel room, a lobby and a hall, while in the southwest wing are to be a w.c. room, a lavatory, two store rooms, two halls and a vestibule. On the ground floor, north side, there are to be four offices, a record room and a hall forming a suite for the D. O. C., eight armouries, one signal and bearers' room, two store rooms, one C. O. office, one Q. M. office, one adjutant's office and one orderly room; on the south side, at the east end, are to be the caretaker's quarters, and at the west, the band rooms. On the first floor, north side, are to be an officer's reading room, an officer's mess room, an officer's ante room, four assembly rooms for officers, a passage, a lecture room, three men's rooms and a men's lavatory; the south east angle wing will contain the Sergeant's rooms and the south west angle wing, band rooms and store rooms.

The main hall is to be heated and ventilated by a hot blast plenum system and the remaining portions of the building by direct steam radiation.

The basement walls are to be of concrete, stone-faced, and on a concrete foundation; the ground and first floor is of brick with stone dressings; the basement floor and floor of hall are of concrete; the partitions are brick; the roof principals, stairs and floor beams of hall are of iron, and the remaining portions of the construction principally of wood.

Plans, &c., prepared by this department.

Contractor, Michael Sullivan.

Architect in Charge, Neil Brodie.

IMMIGRATION BUILDING.

The stationary stone tubs on ground floor were transferred upstairs and the plumbing improved; considerable glazing was done and repairs were made to w.c's, sinks, plumbing, ranges, furnace, roof, gutter, down pipes, settees, locks, screens, furniture, partitions, sterilizer, &c.

Work done under the supervision of D. H. Waterbury, Superintendent Public Buildings, New Brunswick.

CANADIAN PACIFIC RAILWAY, NO. 4 SHED.

This building was altered and improved, new partitions run, additional lighting, wickets, counter, &c., provided. The sewer pipes under building were boxed as a protection from frost.

Work done under the supervision of D. H. Waterbury, Superintendent Public Buildings, New Brunswick.

IMMIGRATION HOSPITAL.

A sterilizing apparatus was purchased and erected and repairs were effected to plumbing, heating, lighting, kalsomining, painting, cooking ranges, woodwork, glazing, &c. The fences were whitened, the coal bin improved, the kitchen and hall were tinted and painted, the hot water front was renewed, some lamps supplied and general repairs effected throughout.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

SAVING BANK.

A truck for transferring books and a gilded truck for flag mast were supplied. Hardwood work fixtures and desks were varnished; the walls and ceilings of the general offices were cleaned and kalsomined; the stonework was repaired and cement pointed; the lawn cesspool was repaired and the asphalt gutter and water-shed were renewed; some sashes were re-corded, and general repairs were effected, under the supervision of D. H. Waterbury, Superintendent Public Buildings, New Brunswick.

CUSTOM HOUSE.

A large number of offices and corridors were cleaned, tinted and painted or varnished and had floors treated; outside window sashes and frames were painted, grained and varnished; radiators and coils were bronzed, and the main entrance doors cleaned off, refinished and new brass plates supplied. Repairs were effected to copper roof covering, electric wiring, batteries, bells, locks, keys, flags, clocks, furnaces, time ball apparatus, fire-tools, plumbing, chimney top, telephones, woodwork, plaster, windows, glazing, ironmongery of doors, doors, windows and closet fixtures. Some radiator sections and a large plate glass window in long room were renewed, and there were supplied a chain block and tackle for hoist, and sundry articles of furniture such as desks, cabinets, chairs, &c.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

MILITARY STORES BUILDING.

A number of steel cabinets, a stationery cabinet, with doors, and some for shelving were supplied, and repairs made to fences and gates, all under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

POST OFFICE.

The hardwood floor of public lobby, ground floor, was renewed and replaced by a tile floor; a spiral stairs was erected in vault; an intercommunicating telephone system was installed for all offices of the building; the porch, roof cresting, bell house, ventilator and flag pole were painted; pigeon hole cases, cabinets, desks and chairs were supplied the superintendent of railway mail service; linen blinds to caretaker's apartments, and additional call bells. A brick partition in basement was removed to increase accommodation for newspaper sorting, &c., two fixtures, sorting cases, &c., were extended and improved; additional fire hose, cyclone grates in furnace, linoleum and rugs, electric lamps, were supplied; additional electric wiring and communicators were installed; a large quantity of painting, kalsomining and varnishing was done; the street letter boxes were painted; some furniture, some disinfecting machines, lock boxes, new ensign, linoleum, bulletin boards and ironmongery were supplied, and repairs and renewals were effected to roof, linoleum, box fronts, locks, hoist, door fittings, railway trucks, clock, lavatories, elevator, woodwork, furniture, floors, newspaper chute, fittings, glazing, stamping pads and heating.

At the Exhibition Building, during Dominion Exhibition, a mail room was fitted with desk, tables, shelves, &c.

Work supervised by D. H. Waterbury, Superintendent Public Buildings, New Brunswick.

ST. STEPHENS.

PUBLIC BUILDING.

The iron work of the exterior was painted and repairs were made to plumbing and joinery under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

SUSSEX.

PUBLIC BUILDING.

The hall, stairway, and nine rooms were tinted and painted, and the roof was painted, new locks were put on front doors and repairs were made to metal covering of roof and woodwork.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

TRACADIE.

LAZARETTO.

The septic tank and drain pipes were cleaned and in part renovated, and repairs were made to galleries about building, w.c's, plaster in basement, roof of laundry, plumbing and ranges.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

WOODSTOCK.

PUBLIC BUILDING.

The footpaths were removed and replaced by concrete footpaths with combined curb, gutter and catch basin. The stone steps were repaired and lengthened, the landing was concreted and the stone walls were pointed.

Improvements were effected in caretaker's apartments, rooms were tinted, a doorway made in hall stairs and a radiator supplied and connected. A steel flag mast was supplied and erected, and a bag rack supplied to post office. Repairs were made to furnace, roof, plumbing, clock dial and clock, and there were rubber hose, door checks and firing tools supplied.

Work done under the supervision of D. H. Waterbury, Superintendent of Public Buildings, New Brunswick.

PROVINCE OF QUEBEC.

ACTON VALE.

PUBLIC BUILDING.

Cement walks were laid about the government property, under the supervision of G. S. Gingras, Montreal, P.Q.

ARTHABASKA.

PUBLIC BUILDING.

On October 15, 1910, a contract was entered into for the construction of a two and a half story brick building with a 5-story tower at angle, on a stone basement, situated on a part of lot 132 fronting on Rue de la Cour. It is to have 57 feet of frontage by 35 feet of depth, exclusive of a two-storied colannaded verandah in rear, seven feet in breadth, extending the entire breadth of the building. With the exception of the basement, which has brick partitions and concrete floor, the floors, partitions, stairs and roof are to be of wood.

On the ground floor are to be the post office entrance and stairway hall, two vestibules and toilet room; on the first floor, 6 rooms and a bath room, and in the attic, seven rooms and a bath room. The heating is to be by hot water and the lighting by electricity.

A detached one-story building 12 feet 6 inches by 10 feet 4 inches for latrines is erected at the rear of the lot.

Plans, &c., prepared by this department.

Clerk of works, George Spenard.

Contractors, Paquet and Godbout.

AYLMER.

POST OFFICE.

On November 13, 1910, a contract was entered into for sundry alterations and additions.

The one-story rear wing is altered, a new floor laid, new windows and doors built in, the floor space rearranged with new partitions, the open space between wing and main building walled in and included in building, an additional brick-walled story with flat roof added, and necessary incidental repairs and alterations made. The heating, lighting and water services are extended to the new portion.

Plans, &c., prepared by the department.

BERTHIERVILLE.

PUBLIC BUILDING.

A cement footpath was laid along front and side of property, and the plumbing and front gallery were repaired and improved under the supervision of G. S. Gingras, Montreal, P.Q.

COATICOOK.

PUBLIC BUILDING.

The flag pole was renewed and the plumbing repaired and improved, under the supervision of G. S. Gingras, Montreal, P.Q.

DRUMMONDVILLE.

PUBLIC BUILDING.

The brick walls of the annex were raised and general repairs effected, all under the supervision of G. S. Gingras, Montreal, P.Q.

FRASERVILLE.

PUBLIC BUILDING.

The ceiling of ground floor, hallway of first floor and stair well were ceiled with sheet metal; the ceilings, walls and woodwork painted, and additional drawer fronts were supplied.

Work supervised by G. S. Gingras, Montreal, P.Q.

ARMOURY.

On July 23, 1910, a contract was entered into for the construction of this building with a frontage on and 15 feet from Joly street. This building has a frontage of 30 feet by a depth of 38 feet. It is a two-story brick building on a concrete stone-faced basement, and excepting in basement where the floor is of concrete and the partitions of brick, the floors, partitions, stairs and roof are of wood.

The basement contains a furnace room, a fuel room and two store rooms; the ground floor an assembly room, two armouries, two C.O. rooms and two entrance vestibules; the first floor, a lecture room, two C.O. rooms and Q.M. store room.

Heating is by hot air furnace and lighting is by electricity.

In the rear of the lot is a one story privy, 10 by 12 feet, of wood on concrete cesspit.

Plans &c., prepared by this department.

Clerk of works, J. N. Anctil.

Contractor, Philippe Dumont.

GRANBY.

PUBLIC BUILDING.

The caretaker's apartments were cleaned, a bath was supplied and a private drain to the river was repaired. Work supervised by G. S. Gingras, Montreal, P.Q.

MEGANTIC.

PUBLIC BUILDING.

On the 11th November, 1910, a contract was entered into for the construction of this building, which is situated on the south side of Main street, on the site of old Presbyterian Church. The main building is 42 feet square, on plan, including the tower, which is 13 feet square, and there is an adjunct in rear, 19 feet in depth by 23 feet in breadth.

There are two stories in brick, excepting tower, which has four stories, on a stone basement and with an unfinished cockloft. The basement floor is concrete and the basement partitions brick, excepting which the floors, stairs, partitions and roof are of wood.

In the basement are the heating apparatus, fuel and stores; on the ground floor main building, the post office, a toilet room, a vestibule and a stairway hall besides the examining warehouse and mail lobby in the adjunct; on the first floor there are the customs collector's office and the living apartments in the main portion and the customs long room in the adjunct.

Heating is by hot water, lighting is by electricity, and drainage is to the town sewer.

Plans, &c., prepared by this department.

Contractors, Paquet & Godbout.

MONTREAL.

ST. LOUIS DU MILE END POSTAL STATION 'E,' P.O. ADDITION.

This is a plain one story brick adjunct on a stone foundation, in the rear of the post office working space, of which it is an extension, 37 feet deep by 26 feet broad.

Plans, &c., prepared by the department.

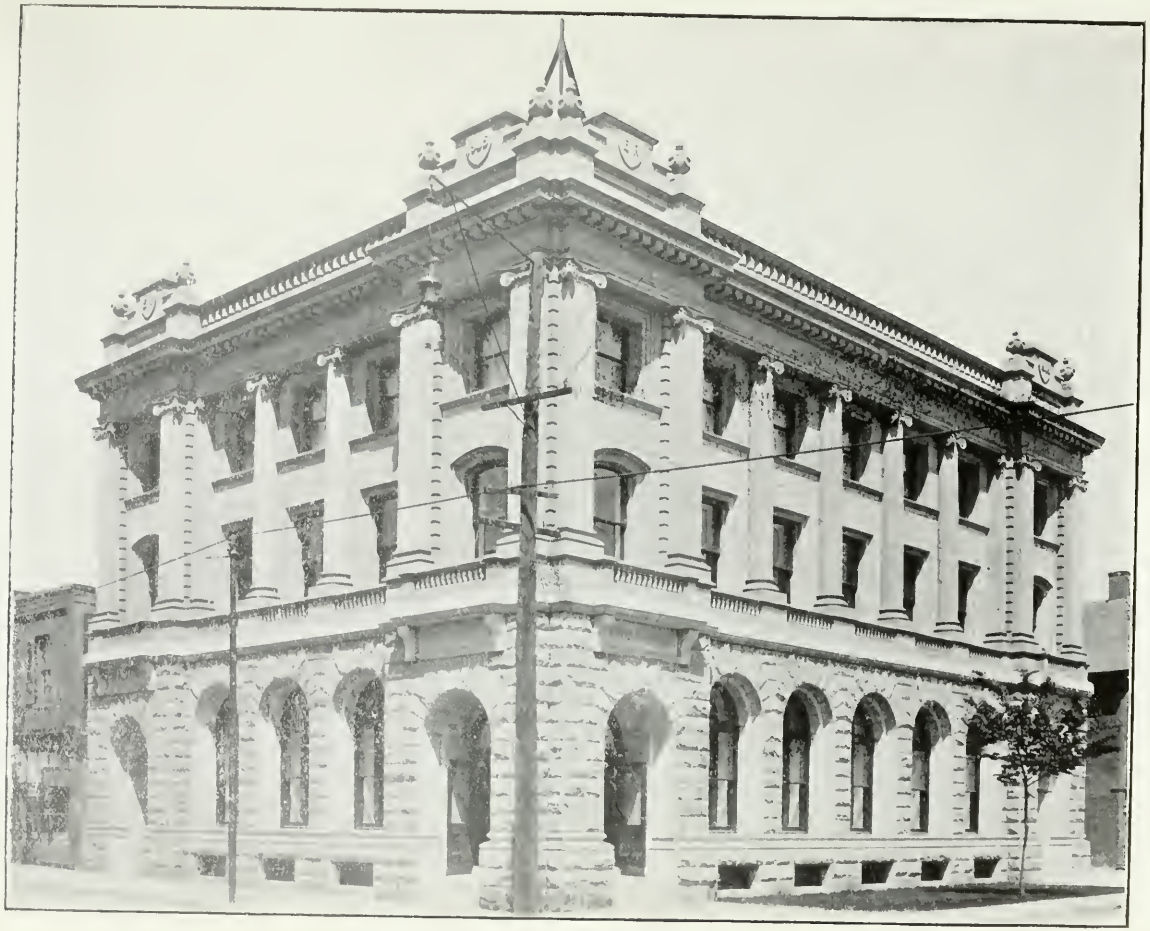
CUSTOM HOUSE.

The smokestack was taken down, repaired and re-erected; new ventilating stacks and cowls were furnished and fitted up; the caretaker's quarters were painted, papered and tinted; the basement was cleaned and whitewashed, and repairs were made to stone coping, steamfitting, plumbing, glazing, roofing, woodwork and painting.

Work done under the supervision of H. N. Lymburner, superintendent of public buildings, Montreal, P.Q.

EXAMINING WAREHOUSE.

The driveway next to the customs house and one-half the length of the way at the farther end were filled in and floored on the general level of ground floor. The passageway or lane between the warehouse and the adjoining property was paved with asphalt blocks excepting the eight feet in width next the warehouse, which was covered by a platform, floored with wood and covered by a galvanized iron roof having



Toronto, Ont., Postal Station "F".

Owen Sound, Ont., Public Building.

Deseronto, Ont., Public Building.

Sarnia, Ont., Public Building.

wrought-iron frame. Repairs were effected to heating, plumbing, elevators, pump, shafting, painting and glazing. Work done under the supervision of H. N. Lymburner, superintendent, Montreal, P.Q.

EXPRESS BUILDING, D'YOUVILLE PLACE.

Forty squares of flooring were laid; the porch and stairs were altered and some plumbing, steamfitting and roofing done under the supervision of H. N. Lymburner, superintendent of buildings, Montreal, P.Q.

GENERAL POSTOFFICE ST. JAMES STREET, ADDITION.

The various branches of the service are now located in the addition and the original building is being recast to suit the new requirements in arrangement.

Work done under the supervision of H. N. Lymburner, superintendent public buildings, Montreal, P.Q.

POSTAL STATION 'B' (ST. CATHERINE WEST).

Repairs were made to the heating, plumbing and lighting system. Work done under the supervision of H. N. Lymburner, superintendent public buildings, Montreal, P. Q.

POSTAL STATION 'C' (AMHERST STREET).

Repairs were made to steamfitting under the supervision of H. N. Lymburner, superintendent of public buildings, Montreal.

INLAND REVENUE.

Repairs were done to heating system, plumbing and gas fitting overhauled, and repairs made to W.C. urinals. Work done under the supervision of H. N. Lymburner, superintendent of public buildings, Montreal, P.Q.

HOCHELAGA.

POSTAL STATION (ST. CATHERINE EAST).

Some painting, whitewashing and varnishing were done and repairs to plumbing done under the supervision of H. N. Lymburner, superintendent of public buildings, Montreal, P.Q.

NOMININGUE.

IMMIGRATION BUILDING.

The exterior was painted and a large hood was constructed over the entrance door.

Work supervised by G. S. Gingras, Montreal, P.Q.

QUEBEC.

CUSTOM HOUSE—RESTORATION.

On October 16, 1909, the upper portion of the custom house was destroyed by fire. Plans and specification were prepared and on February 23, 1911, a contract for the works of alterations and restoration was entered into. All the external walls of the building and most of the internal partitions are retained, but the floors and roof are replaced by others constructed of steel beams and concrete, the central wooden lantern

by one having stone walls carrying a steel and concrete dome, and the wooden stairway by one of steel and slate. Where it is necessary to carry a series of superimposed columns up through the building, concrete piers are built in basement and carried 19 feet below basement floor. The floor of the boiler room, fuel room and ash pit is sunk below that of the basement generally; that part below the general level being lined with boiler plate to form a water-tight tank. The west wing of the basement will contain the boiler house, fuel room and ash pit, while the remaining portions will contain the elevator pit, a lavatory room and four large store rooms. On the ground floor, the customs long room will fill the entire north wing, necessitating the removal of all the partitions ; the south wing will contain the stairway, elevator, lavatory, entrance and corridor and two offices; the east wing will contain the main entrance vestibule, a corridor, two offices and two vaults, while in the west wing will be three offices, the main entrance and stairway being removed therefrom. On the first floor, the inland revenue long room and two vaults occupy the east wing; three offices the west wing; four offices the north wing, and the south wing is occupied by the stairway, elevator, lavatory, main corridor and three offices. In the attic, the north wing will be living apartments; the east wing, three offices and two vaults; the west wing, three offices, and the south wing, three offices, a lavatory room, an elevator and a stairway.

Heating is by hot water and lighting by electricity.

Plans, &c., prepared and work supervised by this department.

Superintending architect, René LeMay.

Contractors, Gosselin & Dubé.

EXAMINING WAREHOUSE.

An electric freight elevator was installed.

DETENTION HOSPITAL.

Five additional rooms were fitted up in the old shed, Savard Park; a ventilator was placed on kitchen chimney; an Emond water filter was installed and some furniture, including three dozen chairs and a typewriter desk was supplied, all under the supervision of A. R. Décary, district engineer, Quebec, P.Q

IMMIGRATION BUILDING.

A watchman's clock, an office desk and chairs, a wardrobe, a washstand, two beds, two rugs, 450 feet of 2½-inch fire hose, two brass nozzles and reel with tools, &c., complete, were furnished; the three self-feeding stoves were repaired; partitions were erected to form the Canadian Pacific railway ticket offices, two enamelled sinks and four waterspouts were put in and a considerable quantity of general repairs and alterations were effected in the various trades, under the supervision of A. R. Décary, district engineer, Quebec, P.Q.

INLAND REVENUE OFFICES.

A cupboard was supplied to the food inspector, a rug to the general inspector, a roll top desk to the deputy collector and a chair cushion to the inspector of light. Six awnings were provided for and fixed to as many windows.

MARINE BUILDING.

The office of the superintendent of the signal service was provided with a desk chair and a twelve-filing cabinet, and that of the marine agent with a filing cabinet of thirty-two locked drawers, and three chairs; all under the supervision of A. R. Décary, district engineer, Quebec, P.Q.

MILITARY BUILDINGS.

Three typewriter desks were supplied to three offices of military district No. 5.

A stone fence with iron gates was constructed at the Dominion arsenal from plans prepared by the department. A large metal filing cabinet was supplied to the registration branch.

Superintending architect, René LeMay.

Contractors, Jinchereau & Lamonde.

OBSERVATORY.

The water service pipes were renewed, under the supervision of A. R. Décary, district engineer, Quebec, P.Q.

POST OFFICE.

There were supplied two standard trucks, two bag racks, two sorting cases, one newspaper sorting case, a catalogue filing cabinet, four final letter sorting frames, one metal locker, one swinging stand, one steel chest, one towel rack, three tables, one set of tools for electrician, one swinging stand, fifty automatic carrier stools, four office desks and ten desk chairs; eight electric bells were installed; the vaults were fitted up with two sets vestibuled vault doors; the building was wired for electric lighting; folders for files and disinfectant for drains were supplied; the external walls were thoroughly repaired and repointed; the office of the Hon. the Minister was cleaned and painted; some stove pipe was supplied, and repairs were made to furnace.

Work supervised by A. R. Décary, district engineer, Quebec, P.Q.

GENERALLY.

One standard truck was supplied for use at the Canadian Pacific railway station, and a telephone was installed at the electrician's residence, all under the supervision of A. R. Décary, district engineer, Quebec, P.Q.

RIGAUD.

POST OFFICE.

On March 15, 1911, a contract was entered into for the construction of this building, which is to be two stories on a stone basement, 45 feet breadth by 38 feet in depth, exclusive of an adjunct to the basement along the front of the building, below ground level, to contain the heating furnace and fuel. The floors are terra cotta and concrete, supported on iron beams and covered with wood flooring, the partitions and stairs are of wood. The basement wing, owing to a slope in the site, is to be underground at the front and entirely out of ground at the rear. The ground floor to be the post office, and the first floor the caretaker's apartments. In the middle of the front elevation and resting on the roof is to be a square clock turret. There is to be a bracketed balcony extending along the greater portion of the rear of the first floor.

Plans, &c., prepared and work supervised by Ludger Lemieux, architect, Montreal, P.Q.

Contractor, Théo. Bélanger.

ARMOURY.

The exterior of the building and the interior of the hall were repainted. The roof covering, gutters and conductors were entirely renewed. Work supervised by G. S. Gingras, Montreal, P.Q.

RIMOUSKI.

PUBLIC BUILDING.

The exterior woodwork was painted, the main entrance steps repaired and covered with metal, and additions were made to the lighting system.

Work supervised by G. S. Gingras, Montreal, P.Q.

ARMOURY.

This building which was described in my report of last year, is virtually completed.

ROBERVAL.

PUBLIC BUILDING.

On February, 21, 1911, a contract was entered into for the construction of this building, on a plot of ground on the west side of St. Joseph street, south of and near the intersection of Roberval street, and to consist of a two stories and basement, main portion 42 feet square having a 4-story angle tower and, in the rear, a one-story and basement adjunct, 25 feet deep and 22 feet broad. The walls are to be of brick with stone trimmings and resting on a stone basement; the floor of the basement is of concrete and the partitions in basement of brick, otherwise the floors, partitions, stairs and roofs are of wood. In the basement are furnace room, fuel rooms, store rooms and stairway hall; on the ground floor, main portion, is the post office and, in the adjunct, the mail entrance, the Collector of Inland Revenue's office and the Weights and Measures office; on the first floor is an office for the resident engineer and the caretaker's apartments. The heating is by hot water and the lighting by electricity.

Plans, &c., prepared by this department.

Clerk of works, Alphonse Parent.

Contractor, L. B. Lachance.

ST. HENRI.

POST OFFICE.

On July 1, 1911, a contract was entered into for the construction of a one-story brick adjunct in rear on a stone basement with a flat roof, measuring on plan 21 feet broad by 23 feet deep, to furnish additional working space for post office. The wall between the working space of the office and the addition is to be removed and the wall supporting the superstructure supported on iron beams. A new doorway is to be formed between main basement and addition. The basement floor is cement, the ground floor and roof of wood. The heating, lighting and water services are to be extensions of those in the building.

Plans, &c., prepared by this department.

Contractor, Jos. Jacobs & Cie.

ST. HYACINTHE.

PUBLIC BUILDING.

Repairs and improvements were effected to the plumbing under the supervision of G. S. Gingras, Montreal, P.Q.

ST. JOHNS.

PUBLIC BUILDING.

The masonry and brickwork of tower were repaired, a new flag staff was erected and a tower clock put in.

Work supervised by G. S. Gingras, Montreal, P.Q.

CUSTOM HOUSE.

General repairs were effected and some fittings and furniture supplied.

Work supervised by G. S. Gingras, Montreal, P.Q.

THETFORD MINES.

PUBLIC BUILDING.

The cellar was enlarged and had the floor and walls concreted.

Work supervised by G. S. Gingras, Montreal, P.Q.

VICTORIAVILLE.

PUBLIC BUILDING.

All the exterior carpentry and joinery was repainted and the interior fittings improved.

Work supervised by G. S. Gingras, Montreal, P.Q.

PROVINCE OF ONTARIO.

BARRIE.

PUBLIC BUILDING.

Snow guards were erected on the building.

Work supervised by Thos. H. Hastings, clerk of works, Toronto, Ont.

BELLEVILLE.

PUBLIC BUILDING.

The street letter boxes were painted, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

BERLIN.

PUBLIC BUILDING.

Water pipes for washing windows and sprinkling lawn were laid; minor alterations in post office were effected, and a hand vacuum cleaner provided, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

BRANTFORD.

PUBLIC BUILDING.

Repairs to lock boxes and generally, to inside of post office were made, and a hand vacuum cleaner provided.

Work done under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

BRIDGEBURG.

PUBLIC BUILDING.

Repairs were made to interior and to front doors, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

CAYUGA.

POST OFFICE.

The interior of the post office was repainted, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

CHATHAM.

ARMOURY.

Some grading and sodding was done, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

PUBLIC BUILDING.

New lavatories and plumbing throughout were put in and fitted up with new radiators, and a new gas heater fitted up, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

COBOURG.

PUBLIC BUILDING.

The slate roof was repaired, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

DUNDAS.

PUBLIC BUILDING.

The street letter boxes were painted, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

DURHAM.

ARMOURY.

This building, which was described in a previous report, is completed.
Plans and specification prepared by this department.
Clerk of works, James Lenahan.
Contractor, Hugh McDonald.

ELORA.

PUBLIC BUILDING.

On September 3, 1910, a contract was entered into for the construction of this building, which will have two stories and basement, with a four-story tower in the northwest angle. It is to be built of stone and be situated on the south side of Geddes

street, on a plot of ground next to the public library. On plan it will be 42 feet square and contains, in the basement, the furnace room, two coal rooms, a store room, and a stairway hall; on the ground floor the post office, and on the first floor the caretaker's apartments. Excepting the basement floor and partitions which are to be of concrete, the floors, stairs, partitions and roof are to be wood. Heating is to be by hot water, and lighting by electricity.

Plans, &c., prepared by this department.

Architect in charge, W. A. Mahony.

Contractors, Whelan and Bleakney.

FERGUS.

PUBLIC BUILDING.

On September 3, 1910, a contract was entered into for the construction of this building, which will have two stories and basement with a four-story tower on the southwest angle; is a stone building fronting on the north side of St. Andrew street, and flanked on the west side by Tower street. It is 42 feet square on plan and will contain in the basement, the furnace room, coal bunkers, ashes store, house cellar; first floor the caretaker's apartments; excepting the basement floor and partitions which are to be concrete, the floors, stairs, partitions and roof are to be of wood. Heating is to be by hot water, and lighting by electricity.

Plans, &c., prepared by this department.

Architect in charge, W. A. Mahony.

Contractors, Whelan and Bleakney.

FORT WILLIAM.

PUBLIC BUILDING.

The addition to this building which was described in my last annual report is practically completed.

Plans, &c., prepared by this department.

Clerk of Works, W. J. Rankin.

Contractor for construction of addition, Chas. H. Sherwood.

Contractor for heating, the Bennett-Wright Company

Contractor for painting and kalsomining, Alex. S. Ross.

Contractor for fittings, The Ottawa Furniture Company.

Contractor for lighting, The Western Electric Company.

GALT.

PUBLIC BUILDING.

New electric wiring and fixtures were installed throughout and a hand vacuum cleaner for post office was supplied, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

GODERICH.

POST OFFICE—ADDITION.

On 19th November, 1910, a contract was entered into for the construction of a stone walled one story and basement adjunct, to the rear of the working space of the post office, 22 feet deep by 35 feet broad, the ground floor rear wall, between the post office working space and the adjunct, being removed and the superstructure supported on beams carried by the walls and an iron column.

Plans, &c., prepared by this office.

Contractors, Nagle & Mills.

GUELPH.

PUBLIC BUILDING.

Seven filing cases were altered; a cabinet for toilet room, some new window blinds and one hand vacuum cleaner were supplied, and repairs were made to roof, down pipes, &c., under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

HAMILTON.

PUBLIC BUILDING.

The street letter boxes and receptacles were repainted, a galvanized iron floor was laid in oil room ,and a rug was supplied, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

INGERSOLL.

PUBLIC BUILDING.

Two rooms in caretaker's quarters were papered, a key cabinet was supplied to post office; additional electric lighting was wired for, and repairs were made to roof, all under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

KENORA.

PUBLIC BUILDING.

Additions were made to p.o. box screen, including new boxes and keys, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

LEAMINGTON.

PUBLIC BUILDING.

This building, which was described in a previous report, is completed.
Plans and specification prepared by this department.

Clerk of works, Samuel O. Roach.
Contractors, W. J. Leslie and W. A. MacNeil.
Contractors for lighting, The Commercial Electric Company.

LINDSAY.

PUBLIC BUILDING.

Electric bells were hung and the walls of the rooms papered in the caretaker's quarters, new lamps installed in post office and minor general repairs effected, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

LONDON.

CUSTOM HOUSE.

The gas inspector's office was cleaned, tinted and painted, and the caretaker's rooms repapered and painted. A hand vacuum cleaner was supplied, some furniture was recovered and repairs were made to plastering.

POST OFFICE.

Two new windows were inserted in outer wall; extensive alterations were made in P.O. fittings; the street letter boxes were repainted; two rooms in caretaker's apartments were painted; some furniture and fittings were supplied the P.O. inspector's office; a gas heater to the P. M. office; electric bell in assistant P. M. office, and a window awning for the post office. The roof was repaired and the masonry pointed. All under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

NAPANEE.

PUBLIC BUILDING.

Electric lighting was installed in the clock tower and a stove for burning waste paper, &c., supplied, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

NIAGARA FALLS

PUBLIC BUILDING.

Alterations of examining warehouse were made to render it suitable for parcels; a safe was supplied to outport at Bridge No. 2; the stone steps were redressed, and repairs were effected to clock and roof. All under the supervision of Thos. H Hastings, clerk of works, Toronto, Ont.

ARMOURIES.

On October 3rd, 1910, a contract was entered into for the construction of this building which is situated on the west side of and 40 feet from Victoria street, and on the south side of and 3 feet from South street with a frontage of 66 feet on Victoria street and 96 feet depth on South street and consists of a basement having stone walls backed by concrete, brick partitions and concrete floor and a ground and first floor having brick walls with stone dressings, brick partitions and wood floors, stairs and roof.

The basement floor has two shooting galleries and one bowling alley each extending the entire length of the building, a lavatory, a wash room, a dressing room, 3 store rooms, a furnace room and a fuel room; the ground floor has 8 armouries, one signal corps room, one mob. store, one q. m. store, one q. m. office, one c. o. room, one adjutant's room, a stretcher room and one lavatory; the first floor, a lecture room, an officer's mess room, a kitchen, a sergeant's mess, 2 band rooms, 2 officer's rooms, 2 lavatories and 2 store rooms.

Plans, &c., prepared by this department.

Clerk of works, George Searle.

Contractor, A. B. Robertson.

NORTH BAY.

PUBLIC BUILDING.

A post office truck was supplied, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

ORILLIA.

POST OFFICE.

A maple floor was laid in caretaker's kitchen; a coil in post office was rearranged and shortened; changes were made in post office screen, and repairs were made to porch, all under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

OTTAWA.

ARCHIVES BUILDING, SUSSEX STREET.

A number of steel cabinets were enamelled and a number of minor works effected.

CIVIL SERVICE COMMISSION.

A large number of desks for examination purposes was supplied, keys were furnished and painting was repaired.

BIOLOGICAL LABORATORY, CENTRAL EXPERIMENTAL FARM.

Plumbing and gas fitting of the chemical branch of the laboratory were fitted up by the departmental repair staff.

CANADIAN BUILDING.

This is a rented building on Slater street.

For the Auditor General's offices, 5th floor, some reglazing was done and the floors oiled and varnished. In the registration branch of the Interior Department, an enamelled wash basin was fitted up. The immigrant commissioners rooms and three others in his branch, as well as those of the registration branch, had the floors treated and the radiators bronzed. Work done by the departmental staff, Jno, Shearer, superintendent.

EASTERN BLOCK.

The water-closet room at the east entrance was renovated; a new window was inserted and the ventilation of the ladies' lavatory improved. There were 17 rooms cleaned, painted and tinted, including floor treatment, of which 10 were in the Indian Affairs Department, 2 in the Privy Council Department, and 5 in the Finance Department; 8 hardwood floors were laid, 2 each in the Privy Council and Indian Affairs Department and 4 in the Finance Department; 26 rods and curtains were supplied, 4 to the Secretary of State Department, 13 to the Finance Department, 3 to the Indian Affairs Department, and 3 to the Auditor General's Department. Partitions with doors, &c., were erected, 10 lineal feet for the Justice Department and 44 feet for the Finance Department; 2 wash basins with water supply, drain connections, &c., were fitted up for the Indian Affairs; 40 lineal feet of shelving were put up for the Privy Council; 6 new windows and frames were inserted, 1 in the Privy Council Department, 4 in the Finance Department and 1 in the Indian Affairs; 30 cupboards were furnished, 2 to the Justice Department, 21 to the Finance Department, 5 to the Secretary of State Department and 2 to the Auditor General's Department; 17 book-cases were supplied, 16 to the Auditor General's Department and 1 to the Privy Council Department; 4 tables were supplied to the Indian Department; 2 fire screens were supplied to the Indian Department; 2 cloth doors were supplied to the Secretary of State Department; 4 floors were oiled and shellacked in the

Privy Council; 179 keys were furnished: 18 to the Privy Council Department, 48 to the Secretary of State Department, 105 to the Justice Department, and 7 to the Auditor General's Department; 15 locks were furnished: 3 to the Auditor General's Department, 4 to the Justice Department, 3 to the Privy Council Department and 5 to the Secretary of State Department; 10 desks were supplied: 4 to the Justice Department, 2 to the Finance Department, and 4 to the Secretary of State Department; 3 pigeon-hole cases were supplied: 2 to the Secretary of State Department, and one to the Indian Affairs Department; 32 trays, 20 step ladders, 5 dozen clothes hooks on rails and a good number of signs were supplied to the Finance Department; 2 door checks were supplied to the Privy Council Department and 1 to the Justice Department; 2 cloth doors, each were supplied to the Privy Council and Justice Departments; 12 picture frames, 1 fan, 70 feet shelving, 5 drop lights, 3 desk lamps, 3 6-light fixtures and 1 3-light fixture were supplied to the Justice Department; 4 chair cushions and 2 desk lamps were supplied to the Auditor General's Department; 1 map rack, 2 screens, 2 stands, 2 pairs trestles, 3 drop lights, 2 4-light fixtures, and 1 3-light fixture were supplied to the Indian Affairs Department, and repairs were made to 36 chairs, 3 map racks, 8 desks, 2 sofas, 26 locks, floors, cupboards, windows, doors and a large quantity of glazing. A number of chairs were re-upholstered and repairs were made to call bells, glazing, &c.

There were minor jobs such as lettering, painting, general repairs, &c. The double windows and summer blinds were taken off, stored, cleaned and put on periodically, and the roofs, footpaths and roads were kept free from snow during winter.

Work done under the supervision of this department.

John Shearer, superintendent.

ADDITION TO EASTERN BLOCK.

On July 17, 1910, a contract was entered into for this work which is to be erected on the eastern side running north and south, parallel to the western or principal face. It is to be similar in external treatment and number of stories to the original building and will consist of an extension northward of the short western face, to the end of the quadrangle or courtyard, where it is to be returned at right angles westward, until it abuts the main building just south of the Privy Council Chamber. It is to be 158 feet in length and 64 feet in breadth at its southerly end and 40 feet in breadth at the point of return westward. In the basement are to be 3 vaulted rooms, one of them 35 by 16 feet and 2 of them 16 feet square, 2 record rooms, 4 rooms for use of Dominion Police, 4 offices, a room for burning bank notes and a bath and w.c. room. On the ground floor are 3 vaulted rooms, one 35 by 17 feet and two 17 feet square, 2 record rooms, 6 offices, 2 w.c rooms and, at the north end, a large entrance vestibule. On the first floor are 13 offices, 1 record room and 2 w.c. rooms. On the second floor are a lecture room, 2 record rooms, 10 offices and 2 w.c. rooms. The partitions, floors and roof are of steel and concrete.

Plans, &c., prepared and work supervised by this department.

Contractors, Doran & Devlin.

CENTRAL EXPERIMENTAL FARM.

A platform and shelter house were constructed at the farm terminal of the Ottawa Electric railway, and the 6-inch water main was extended from Carling avenue to the booster pump at the biological library. Seven chimneys were rebuilt at several of the residences, and the old portion of the office building had a chimney and a gable rebuilt and the entire exterior repaired.

Work done under the supervision of this department.

John Sharp, clerk of works.

OBSERVATORY.

The foundation wall, piers, wells and cesspool for the two Azimuth mark huts were done and temporary buildings for the winter's use erected over piers. Concrete foundation walls and piers for the stellar camera hut were built. An anemograph tower was constructed on the roof of the observatory building, and a new entrance to ground floor of standardizing building as also some skylights. The water pipe was extended from the observatory building to the cesspools of the Azimuth huts and connected with the rotary booster pump in the observatory building; a hydrant and 130 feet of 4-inch water main were laid within the observatory grounds. The electric cable was extended from the observatory to light the Azimuth huts. One and three-quarters acres of observatory grounds were graded and levelled, the roadways stoned, 8 000 yards of sodding done and the grounds piped for lawn sprinkling. Six hundred and seventy-five feet of permanent footpaths with steps and crossings were laid.

Work done under the supervision of this department.

John Sharp, clerk of works.

GOVERNMENT HOUSE.

There were 600 lineal feet of plank sidewalks renewed and a number of plank crossings repaired. Of new fencing, there were 200 lineal feet of 4 feet picket fence rebuilt and 300 feet of same repaired and painted; 1,142 lineal feet of 5-strip fence built; 510 lineal feet of 7 feet boundary fence rebuilt and 180 feet lineal of 5 feet picket fence taken up and set in another position. Two pairs of gates, each 9 feet 6 inches wide, were supplied and the gateway at Keefer street was closed and one opened between Keefer street and Dufferin road.

The curling rink was thoroughly repaired, the old sills replaced by new and set on a new concrete foundation, the walls were straightened, the north and south walls resheeted, the reception room floors straightened, a concrete hydrant chamber built and the roof of the small room at the east end reshingled.

New posts were put in coal shed foundation, boarded up and painted. The roof of workshop and store-house was reshingled and the storehouse enlarged. The porch at north end of root house was rebuilt.

The galvanized iron deck covering of the hall was cleaned and painted.

A large temporary building for sitting-out room was erected before and removed after state ball.

An old summer house was removed. The drain at coach house was opened, cleaned and made good; 2 new curb tops and covers were made for trap pits at stables, one for hydrant at hot bed ground and one for valve chamber in garden.

The toboggan slide was thoroughly overhauled and repaired. Six boxes for napery, 12 packing cases for books, 3 crates with wire sides to carry dogs, and 6 step-ladders were provided for the Hall. The rink shelter and tea room was supplied with 19 shutters, 11 screen frames and 5 screens, and the screens of the sitting-out room on verandah were re-covered with wire netting. Five wire screens were made for Rideau cottage and 2 for coachmen quarters; new sash new stops, cords, &c., were put in gardener's house; 40 outside wooden blinds and frames were repaired and painted for stables, dairy and cottage, and 2 for the Governor General's office.

At the tennis court, concrete bases were made for 2 net posts; 150 feet lineal, 10 feet high of stop net and 10 hardwood posts therefor were put up.

In the gardens, a large number of galvanized iron rings and stakes were supplied, a large bed arranged for sash was built, double windows were made for potting shed and also a concrete potting table 18 feet long by 4 feet by 3 feet 6 inches high; 175 feet lineal of gravel path was laid. The cedar hedge at south side of gardens was removed and in place, a dry wall 200 feet long by 4 feet 6 inches high was erected.

Of electric light fixtures there were supplied 14—3 light pendants, 6 brackets and 5 lamp screens, besides the recovering in silk of 21 lamp screens and 31 lamp shades.

A heating range was supplied for coachman's quarters, a gas stove to the Hall kitchen to replace an old one; lining bricks and top plates were supplied for the John Bull range and top plates for the kitchen range and all stoves, ranges and heating furnaces throughout the various buildings were thoroughly cleaned, repaired and furnished with new smoke pipes where necessary.

At the green houses, an implement shed was built, as also a w.c. for workmen. There were supplied, 4 terra cotta vases, implements, insecticides, fertilizers, flower pots, stakes, fern pots, fern boxes, jardinieres, vases, &c., and a large quantity of broken glass was replaced. Baskets, bowls and vases for table floral decoration were supplied; 4,349 inches of copper kitchen utensils were retinned and 40 mats and rugs were cleaned.

At Rideau Cottage, 1,867 yards of carpet were taken up, cleaned and relaid, and 2 pairs of curtains and one bedspread supplied.

At the Hall, there were supplied a complete set of bath-room fittings, one 8-day clock, 1 large mirror, 6 brass bedsteads with mattresses, 15 picture frames, 12 verandah chairs, 12 holland blinds, 2 fur bedroom rugs, 12 quilts, 14 comfortables, 1 mat, 36 yards silk for table covers, some new linen including table cloths, china and glass cloths, kitchen and stable rubbers, &c., &c., sateen for curtains, general use china, crockery and glassware, pans, dishes, kitchen utensils and flags.

Repairs and renewals were made to furniture, heating, plumbing, water and bell services, joinery, plastering and glazing.

The conservatories were kept in order, the hay was cut and housed, the lawns, drives, &c., rolled and otherwise tended. The ice-house was stored with ice. The roofs, paths, slides, rinks, &c., were cleared of snow by the departmental staff, by whom the grounds, lawns, gardens and plant-houses were maintained. The curling and skating rinks were flooded and tended and the toboggan slide was kept in order.

The usual periodic cleaning, packing and unpacking were done; arrangements for and attendance on entertainments were furnished, and the rinks, slides, &c., kept in order.

Work done under supervision of Wm. Hutchison, superintendent.

LANGEVIN BLOCK.

The western battery of four hot water heating furnaces in the basement, being condemned as worn out, were removed and replaced by steel tubular hot water furnaces set in brickwork. Alterations of portions of the sub-basement and basement mains on the same side of the building were made, and the large valves on mains where they are connected with the headers were renewed.

The entire telephone system was overhauled, and the wires thereof placed in steel conduits. The oak doors were scraped and varnished. Six wash basins were supplied, two each to the Agriculture, Post Office and Interior departments; 23 rooms were cleaned, tinted and painted and had floor treated, 15 in the Post Office Department and 8 in the Agriculture Department; 50 feet of shelving were supplied to the Post Office Department, and 55 feet to the Agriculture Department; 561 keys were supplied, 493 to the Post Office Department, and 68 to the Agriculture Department; 30 tables were supplied to the Agriculture Department and 5 to the Post Office Department; 41 drop lights were supplied to the Agriculture Department and 8 to the Post Office Department; 12 desk lights were supplied to the Agriculture and one to the Post Office Department; 12 step ladders to the Agriculture Department and 6 to the Post Office Department. To the Agriculture was supplied 2 ventilators, 10 checks, 1 stop, 6 book cases, 1 cabinet, 8 press stands, 8 rods and curtains, 6 cupboards, 15 boxes, 1 map rack, one lot of steel cabinets, a number of signs and a number of tin pans; to the Post Office

Department, one electric fan, 1 urinal, 6 cushions, 4 deflectors, 3 desks, 6 locks, 9 3-light fixtures and 15 feet lineal of partition; 10 locks and 76 articles of furniture were repaired for the Post Office Department, and 10 windows for the Agriculture Department. A quantity of reglazing and minor repairs in all trades were done.

Work done under the supervision of this department.

John Shearer, superintendent.

LOCAL GAS AND ELECTRIC LIGHT INSPECTION OFFICE, INLAND REVENUE, WELLINGTON STREET.

Wiring in conduit was conducted from entrance to test table; gas piping was fitted in testing laboratory; electric fan connections in weights and measures standards branch were laid in conduit pipe.

FOTHERINGHAM AND POPHAM BUILDING, QUEEN STREET.

Five rooms were connected for bells, for Interior Department.

MAJOR'S HILL PARK.

Usual and ordinary repairs were effected and the grass and flower display well kept up.

Work carried on under the supervision of the department.

John Shearer, superintendent.

Thomas Davis, gardener.

MEDICAL STORES BUILDING.

This is a rented building on the corner of Emmett and Lisgar streets.

MILITIA BUILDING, SLATER STREET.

There were supplied 8 cupboards, 16 tables, 6 window deflectors, 14 screens, 2 doors and frames, 15 feet partition, 9 brass rods and cushion, 64 feet of coat racks, 1 telephone, 37 drop lights, 15 desk lamps, 3 electric fans, 15 3-light fixtures, 10 4-light fixtures, 5 2-light fixtures, 3 extension telephones, 1 desk telephone, 1 telephone, 29 keys, 6 locks, 3 checks, 1 telephone box, 125 feet shelving, and repairs were made to 15 chairs, 10 locks, 14 checks, 15 chairs, 6 desks, 4 tables, and locks and ironmongery; a large number of lights were reglazed, a number of signs were written and furniture painted and varnished.

Work done under the supervision of this department.

John Shearer, superintendent.

DEPARTMENT OF LABOUR, CORNER OF QUEEN AND O'CONNOR STREETS.

This is a rented building. Alterations of the electric lighting and electric bells systems were made; 8 electric fans, 9 drop lights and 11 3-light fixtures were installed and telephone wiring was done in the messenger's room. Three cloth doors were re-covered and a number of door signs and lights of glass put in. There were supplied 14 feet of glass partition, 2 cupboards, 2 book cases, 1 hardwood floor, 30 feet of shelving, 10 leather cushions, 1 counter, 2 deflectors, 6 ventilators, 12 locking bars with locks, and 96 drawer locks on drawers, rugs were supplied and door checks repaired.

For the Superintendent of Insurance two wash basins, a marble topped stand and 2 lavatories were fitted up. A water service pipe was fitted up in the currency branch. Call bells and indicators were placed in four rooms or offices for Assistant Adjutant General.

Work done by the departmental staff.

John Shearer, superintendent.

MILITARY STORES BUILDING.

On November 20, 1909, the roof and a portion of the upper stories were destroyed by a fire, and a quantity of the materials stored therein was damaged by fire and water. A contract for the works of reconstruction was entered into on May 17, 1910, and they were proceeded with at once in accordance with the original plans, but with an additional story.

Plans, &c., prepared and work supervised by the department.

Contractors, McGillivray and O'Toole.

NAVAL DEPARTMENT, HAWKESBURY BUILDING, SUSSEX STREET.

A hot water heating apparatus, plumbing, electric lighting and electric bell work was done, a grate was put in the deputy minister's room, a brick wall was built, 29 toilet cabinets, a flag pole and 100 feet of ash strips were provided, the offices were painted, tinted and papered and had floors treated and the offices were supplied with fittings and furniture.

Work done by the departmental staff.

John Shearer, superintendent.

PARLIAMENT BUILDING.

The iron work and metal covering of main tower roof and clock faces, the flag staff and the iron work on roof of library were cleaned and painted. There were 23 rooms cleaned, tinted and painted, seven of which were for the House of Commons, 15 for the Senate and one for the library. The Senate chamber was re-decorated and the drapery and gilding of the throne renovated. A number of the corridors were repainted, some basement rooms papered and some woodwork revarnished. Room 82 was divided by terra cotta partitions into three rooms. There was 14 drop lights, 8 desk lamps, one portable gas stand, one Williams lamp, one door bell and one call bell supplied. 776 keys and 25 locks were supplied the Commons, 163 keys the Senate and 17 keys the Library of Parliament; 151 locks were repaired for the Commons, 70 for the Senate and 4 for the Library of Parliament; 20 cloth doors were supplied; 3 tables and 41 chairs re-covered for the Senate. In the Commons, 400 signs were lettered for the distribution room, one new basin and one radiator supplied and fitted up, some steam pipe covering was put on, bell connections were made good, and a number of window frames and sashes were renewed.

There were minor jobs of lettering, painting, &c., a large quantity of reglazing, general repairs, &c. The double windows and summer blinds were taken off, stored,

cleaned and put on periodically, and the roofs, footpaths and roads kept free from snow during winter.

Work done under the supervision of the department.

John Shearer, superintendent.

PARLIAMENT GROUNDS.

Some 2,222 lineal feet of the gravelled roadway, 40 feet in breadth was paved with concrete foundation finished in asphalt. A new gas main was laid between East and West blocks. The grass, trees, shrubs and flowers were given the best attention and were well up to the standard.

Work executed under the supervision of Jno. Shearer, Superintendent.

T. Davis, gardener.

PATENT RECORDS OFFICE.

This is a rented flat in the Ker building on Lyon street, which was fitted up for the Patent Records Branch of the Agriculture Department.

Work done by the departmental staff.

Jno. Shearer, Superintendent.

POPHAM AND JARMAN BUILDING, QUEEN STREET.

This is rented premises. One wash basin was fitted up for the Department of Interior binding room.

Work done by the departmental staff.

Jno. Shearer, Superintendent.

POST OFFICE.

The ground floor and the offices of the postal stores branch were cleaned, tinted and painted; the steam pipes and radiators bronzed and the floors treated; the oak doors were scraped and varnished; in the basement, two radiators were placed and the steam mains covered with asbestos; 490 keys and 6 locks were supplied and repairs were effected to 10 locks.

Work done under the supervision of the department.

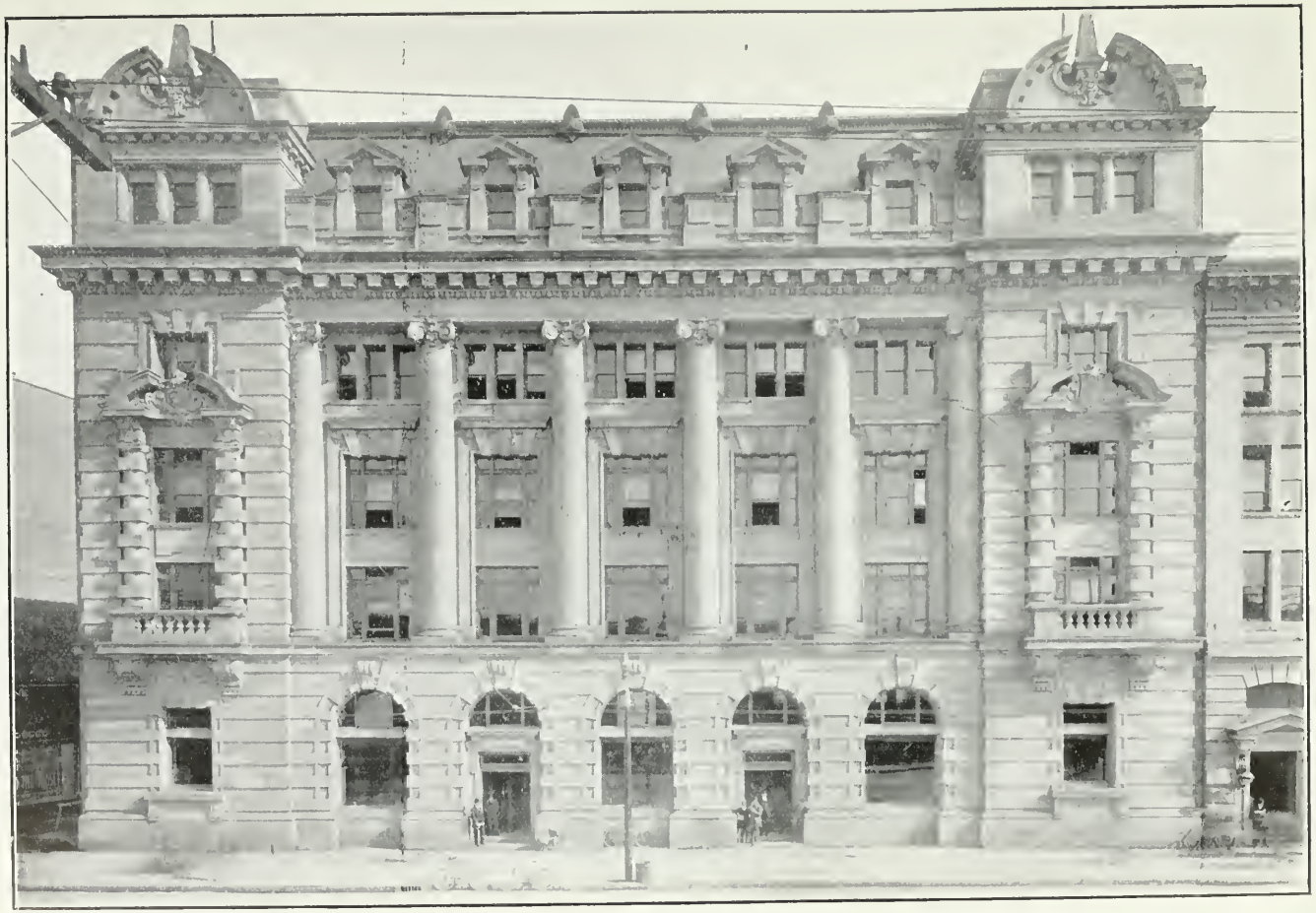
Jno. Shearer, Superintendent.

PRINTING BUREAU.

A telephone was wired for the linotype room; the lower half of the furnace fronts were renewed, and ordinary grate bars put in fire box, owing to the discontinuance of the use of soft coal and the resumption of hard coal as fuel; a large amount of plumbing was done and material supplied; 3 armatures, 31 closet seats, one automatic flushing tank, some brass flushing tanks, 94 keys, 15 locks, 5 cheeks, 31 pairs brackets, 6 leather cushions and one table were supplied. Shelving was put up in large room.

Work supervised by this department.

Jno. Shearer, superintendent.



Winnipeg, Man., Post Office.

Dauphin, Man., Post Office.

Regina, Sask., Public Building.

Edmonton, Alta, Public Building.

REPAIRING STREETS, ETC.

Repairs were made to planking and paving on Wellington street, Laurier and Dufferin bridges and Cartier square. Scraping, cleaning and general repairs were done to the various roadways, footpaths and streets, under the control of the department. Rubbish, scrapings and ashes were removed from the East block, West block, Langevin block, Parliament Building, Workshops, Post Office, Printing Bureau, Museum, Archives Building, Military Store building, the Mint, the several rented buildings, and the various streets, and deposited at Nepean Point; the grass at Printing Bureau, about Cartier Square, Royal Mint, Wellington street, two bridges, Survey office, Fisheries Museum, Archives building was kept clipped, manure was drawn on and removed therefrom, and the ashes removed from the boiler-houses and furnace rooms of the various buildings; the roadways, sidewalks, footpaths, roofs and yards were kept clean of snow and the footpaths sanded during the winter.

Work done by the departmental staff.

Jno. Shearer, superintendent.

Foreman, Cy. LeBlanc.

REFINERY BUILDING, ROYAL MINT.

This building is completed and occupied.

Plans, &c., prepared and work supervised by this department.

Clerk of works, J. Kennedy.

Contractor, John O'Leary.

ROYAL MINT.

Brass coils and tank lining for silver cells were provided, connected and made complete; connections with the water service were made at four outside points for watering purposes; call bells were hung in the refinery and a large amount of plumbing done there and in the main building; 11 electric light fixtures ranging from two to five lights were installed and a heating radiator fitted up. All the lighting and bell service had attention. Vitrified conduits for the electric lighting mains were constructed; 5 ventilators were placed in the roof; the furnace of the assay branch was repaired and there were supplied, one vestibule door with side lights and frame, one porch, 26 keys, 6 tags and 6 rings.

Work done under the supervision of this department.

Jno. Shearer, superintendent.

RESIDENCE OF CHIEF ASTRONOMER.

This building which was described in my report of last fiscal year is completed and occupied.

Plans, &c., prepared and work supervised by this department.

Contractors for construction of the building, Doran & Devlin.

Contractors for heating apparatus, Martel and Langelier.

SURVEYS BRANCH, INTERIOR DEPARTMENT.

(Corner of Metcalfe and Slater streets.)

This is a rented building. Gas connections were put in and one new wash basin bowl.

WOOD'S BUILDING, QUEEN STREET.

This is a rented building. The corridor floors in attic were treated, a large number of signs were supplied and some reglazing done. There were supplied 11 goose-neck lamps, 1 drop light, 8 keys and 6 locks, and there were 35 articles of furniture supplied.

Work done by the departmental staff.

John Shearer, superintendent.

TESTING LABORATORY.

(Cliff Street Property.)

This is a one-story building 34 feet by 19 feet of brick-hollow wall, wood lined, on a stone basement and with a wooden roof, and is connected by a wooden covered passage on concrete piers, to the observatory. The contract for this building was signed 13th August, 1910.

Plans prepared and work supervised by the department.

Contractor, Aug. Boehmer.

SUPREME COURT BUILDING.

An automatic system of ventilation was put in the Supreme Court chamber having fresh air inlets in the riser of the dais and outlet at the south end of the chamber over the entrance. A new drain was built to the foot of Bank street. The cement floors were repaired; electric bells were installed in the Exchequer Court, a man-hole was built in yard and there were supplied 3 gates, 18 feet shelving, 1 telephone cupboard and 1 brass rod and curtain. Repairs were made to 12 chairs.

Work done by the departmental staff.

John Shearer, superintendent.

TRAFALGAR BUILDING.

(Corner Bank and Queen Streets.)

Offices were rented in this building for the Accountant's Branch of the Interior Department, the Civil Service Commission and the Annuities Branch of the Trade and Commerse. For the Civil Service Commission were supplied 1 desk, 1 book rack, 2 tables, 2 cupboards, 2 rods and curtains, and a few cupboards and boxes were painted. Repairs were made to desks, tables, chairs, doors, windows, &c., 17 lights were reglazed. The offices of the Under Secretary of State, External Affairs, were moved from the Eastern Block to offices in this building.

New bell connections made for rooms 307, 304, 308 and 312, for the Interior Department.

Work done under the supervision of this department.

John Shearer, superintendent.

VICTORIA MUSEUM.

The walls of the picture gallery were painted and there were supplied thereto 1 desk telephone, 3 keys, and 4 locks. The Geological Survey scientific collections,

library and office furniture were removed from the Sussex Street Museum to this building, as was the National Art collections from the building on the corner of Queen and O'Connor streets.

Work done by the departmental staff.

John Shearer, superintendent.

WESTERN BLOCK.

Forty-nine rooms were cleaned, tinted and painted and had floors treated, of which 14 were in the Department of Public Works, 6 in the Customs Department, 15 in the Railways and Canals Department and 14 in the Marine Department, together with 775 yards of tinting and 200 yards of painting in corridors; 18 hardwood floors were laid, 7 for the Railways and Canals Department, 3 for the Marine Department and 4 each for the Public Works Department and the Customs Department; 43 new windows and frames were put in, 13 for the Marine Department, 8 for the Public Works Department and 22 for the Customs Department; 46 rods and curtains were supplied, 8 to the Railways and Canals Department, 29 to the Marine Department, 1 to Mounted Police Department, 3 to the Public Works Department and 3 to the Customs Department; 7 cloth doors were supplied and hung for the Marine Department; 37 tables were supplied, 18 to the Marine Department, 8 to the Inland Department, 2 to the Railways and Canals Department, and 9 to the Customs Department; 347 packing boxes were supplied, 308 to the Public Works Department and 39 to the Railways and Canals Department; 8 fire screens were supplied, 3 to the Inland Revenue Department and 5 to the Marine Department; 26 cupboards were supplied, 15 to the Marine Department, 3 to the Inland Revenue Department and 12 to the Public Works Department; 650 feet of shelving were fitted up, 377 for the Customs Department, 154 for the Marine Department, 84 for the Inland Revenue Department and 35 for the Railways and Canals; 126 feet lineal of partition were erected, 61 feet for the Marine Department, 70 feet for the Customs Department and 20 feet for the Inland Revenue Department; 3 deflectors were supplied to the Customs Department and 6 to the Marine Department; 488 keys were supplied, of which 365 were to the Public Works Department, 56 to the Marine Department, 24 to the Railways and Canals Department, 23 to the Inland Revenue Department, and 20 to the Customs Department; 14 locks and 13 checks were supplied to the various departments and a large number repaired; 11 lavatory basins were fitted up and connected, 5 in the Public Works Department and 2 each in the Customs, Railways and Canals and Inland Revenue Department; 18 electric fans were fitted up and connected, 7 in the Public Works Department, 9 in the Marine Department and one each in the Customs and Mounted Police Departments; 19 window poles, 5 radiators and 75 feet of picture moulding were supplied to the Customs Department; one radiator each was supplied to the Marine and Inland Revenue Departments; the Marine Department had 7 rooms hung with electric bells and the Public Works Department 7 rooms; 177 brass tags and 165 rings were supplied to the Public Works Department and 112 coat hooks to the Marine Department; 124 drop lights were installed, 56 in the Customs Department, 48 in the Marine Department, 15 in the Public Works Department, 4 in the Railways and Canals Department and one in the Mounted Police Department; 24 desk lamps were supplied, 13 to the Marine Department, 4 each to the Customs and Public Works Departments and 3 to the Railways and Canals Department; 107 pieces of furniture were repaired, 82 for the Public Works Department, 18 for the Marine Department, 8 for the Mounted Police Department and 4 for the Inland Revenue Department; for the Railways and Canals, a new system of telephones was installed and telephones changed in 3 rooms, 60 feet of coat rack with hooks and 5 step ladders were provided; for the Marine Department 1,000 feet of picture moulding were provided and fixed. Of electric light fixtures there

were provided and installed for the Customs Department one 2-lights, 3 4-lights, five 5-lights and two 7-lights; for the Public Works Department three 2-lights, four 3-lights and four 4-lights; for the Marine Department three 4-lights and one 5-lights and for the Railways and Canals Department one 5-lights. The Customs laboratory was removed to No. 107 McKenzie avenue, whereat the verandah was removed and the building fitted up for the purpose.

There were also repairs to a large number of articles of furniture, as also minor jobs in painting, lettering and of joinery. The roofs, roads and footpaths were kept free from snow. The winter sashes and summer blinds were cleaned, put on, taken off and stored periodically.

Work done under the supervision of this department.

Superintendent, John Shearer.

BUILDINGS AND GROUNDS GENERALLY.

The buildings at Ottawa as well as throughout the Dominion were draped on the occasion of the death of His Majesty King Edward VII.

In the addition to the works mentioned in the foregoing, there are innumerable smaller works, *i.e.,* there are items of repair done by the roofers, the masons, plumbers and other trades, items taking each a number of day's work of a tradesman, besides material to accomplish. Besides all these, in connection with the various buildings, the property of the government, there are similar works of repair, painting, furnishing, tinting, &c., in connection with a number of rented buildings; also such works as repairs to and renewals of coal and other sheds, as well as works of a general character, such as the erection and taking down and storing of porches, winter boarding of outside steps, &c., all of which are done by the departmental staff.

John Shearer, superintendent.

PARIS.

PUBLIC BUILDING.

Extensive alterations of the P.O. fittings were made; the electric fittings were altered, a hand vacuum cleaner was supplied, and the lawn serviec repaired, all under the supervision of Thos. H. Hastings, clerk of Works, Toronto, Ont.

PARKHILL.

PUBLIC BUILDING.

A partition dividing stairway from public lobby was erected, the electric lighting was installed on P.O. screen and the location of one of the heating coils was changed, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

PETERBOROUGH.

POST OFFICE ADDITION.

On February 15, 1911, a contract was entered into for the construction of a one-story brick adjunct on a stone basement 36 feet frontage, by 50 feet deep, the full breadth of the building, and extending the frontage to north lane. The adjunct is a continuation of the ground floor of the building and of the working space of the post office. A part of the ground floor wall of the building abutting on the adjunct, is

removed and the superstructure supported on steel beams carried by the walls and an iron column. There are windows on all three sides and a skylight over. The external treatment is similar in all respects to adjoining work on original building.

Plans, &c., prepared by the department.

Contractors, Rose and Hickey.

PETROLEA.

A vitrified brick pavement was laid in street, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

PORT ARTHUR.

PUBLIC BUILDING.

Some furniture was supplied and the roof repaired, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

IMMIGRATION BUILDING.

The roof was reshingled, under the supervision of Thos, H. Hastings, clerk of works, Toronto, Ont.

PORT COLBORNE.

PUBLIC BUILDING.

A hood or shelter over the main entrance was erected, under the supervision of Thos. H. Hastings, Toronto, Ont.

SANDWICH.

PUBLIC BUILDING.

The caretaker's apartments were painted and papered; the heating furnace and the caretaker's range were connected and arranged for heating and cooking by gas, and some minor general repairs were effected, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

SARNIA.

PUBLIC BUILDING.

The street was paved; winter sashes were provided for windows throughout the building; iron bars were placed on basement and Postal Customs rooms, and minor jobs of painting and general repairs effected. All under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

ST. CATHARINES.

PUBLIC BUILDING.

The examining warehouse was altered to accommodate the appraiser of customs; new fittings were erected in the post office; a new revolving door was put on entrance; some of the caretaker's rooms were papered; furniture and window shades were supplied appraiser's office; furniture was supplied Collector of Customs and the heating apparatus was repaired, all under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

ST. MARY'S.

PUBLIC BUILDING.

The yard was gravelled; the front steps were redressed, and a hand vacuum cleaner was provided, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

ST. THOMAS.

PUBLIC BUILDING.

Alterations were made to the entrance; a rubber tired truck and a hand vacuum cleaner were provided, and repairs were made to eave-troughs and down pipes, all under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

STRATFORD.

PUBLIC BUILDING.

Ontario street, where it adjoins the Government property, was paved; some furniture and linoleum were supplied and repairs were effected to cement floor and coal chute. All under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

SIMCOE.

PUBLIC BUILDING.

A hand vacuum cleaner was supplied, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

TRENTON.

PUBLIC BUILDING.

The roof was painted; some new plumbing, including a new W. C. and a new sink were fitted up; lights were installed in caretaker's apartments; some checks and springs were provided for doors, and repairs were effected to vestibule doors, all under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

TORONTO.

POST OFFICE.

A mail hoist was put in; 5 rooms on 2nd floor were renovated and a room and hall papered; the P. O. inspector's offices were provided with cork linoleum, carpet, three tables and an oak wardrobe; 10 trucks were supplied the post office; filing cases were supplied to the chief P. O. Superintendent and for the railway mail service; two dozens slat baskets were supplied, and repairs were made to elevator and roof.

Work supervised by Thos. H. Hastings, clerk of works, Toronto, Ont.

INLAND REVENUE AND ASSISTANT RECEIVER GENERAL'S OFFICE.

The office was cleaned, tinted, painted, varnished and some floor rugs supplied, all under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

METEOROLOGICAL BUILDING.

The grounds were laid out and planted; an instrument case, two telephone booths and two electric brackets were supplied, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

CUSTOM HOUSE.

There were supplied 2 desks, and chairs repaired and re-upholstered, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

EXAMINING WAREHOUSE.

No. 1 boiler was retubed, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

POSTAL STATION "A".

Six trucks and some linoleum were supplied, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

POSTAL STATION "D" (WEST TORONTO).

Some sodding was done, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

POSTAL STATION "E".

A new panel to fit window for letter boxes was supplied, and new fittings put in, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

POSTAL STATION "F".

Some letter boxes were removed and replaced by panelling; a partition was erected and a rug and curtains with pole, &c., were supplied.

Work supervised by Thos. H. Hastings, clerk of works, Toronto, Ont.

WALKERTON.

PUBLIC BUILDING.

Alteration of P. O. box screen was made, the stamp office removed and the staircase and a room in caretaker's apartments repapered. All under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

WATERLOO.

PUBLIC BUILDING AND ARMOURY.

On October 3, 1910, a contract was entered into for the construction of this building. It is to have two stories, attic and basement, with a five stories tower on angle, having a street frontage of 58 feet by a depth of 38 feet exclusive of 6 feet projection of tower, and of a wing in rear extending 44 feet in depth by 29 feet in breadth. The basement of the main portion only is excavated. The basement and ground floor walls are stone; those of the first floor brick with stone dressings, and those of the attic wood. On the right front angle is a 4-story tower of stone and brick, 14 feet square, which projects 6 feet from building on front and side. There is a brick vault on each floor of the main building but the attic. In the main portion, the partitions on the

basement and ground floor in part on the first floor are brick, but the remainder, as also the floors, roof and stairs are wood, excepting the floor of basement, which is of concrete. The basement is for heating furnace, fuel and other stores; the ground floor of the main portion is for the post office, entrance hall and vestibule; of the wing for examining warehouse, mail entrance, weights and measures office, three regimental C. O. rooms, toilet rooms, vestibule and stairway; the first floor of the main portion is for Customs and Inland Revenue offices, toilet room and store room; of the wing for two armouries, Q.M. store, toilet room and stairway; the attic of the main portion for caretaker's apartments, and of the wing for men's recreation room, store room and stairway hall.

Plans, &c., prepared by this department.

Contractor, L. B. Lachance.

Clerk of works, Charles Moogk.

WELLAND.

PUBLIC BUILDING.

This building, which was described in a previous report, is completed, heated by hot water and lighted by electricity.

Plans and specification prepared by this department.

Clerk of works, Edgar Rounds.

Contractors, Nagle and Mills.

Contractor for lighting, H. J. Breay.

Contractor for heating, S. P. Gourlay.

WHITBY.

PUBLIC BUILDING.

This building, which was described in my previous report, is practically completed, wired for electric light, fitted with a hot water heating apparatus, furniture and office fittings.

Plans and specification prepared by this department.

Clerk of works, W. H. Bradshaw.

Contractors, H. Gay and Sons.

Contractor for lighting, W. J. Trick.

Contractors for heating, Martel and Langelier.

WINDSOR.

PUBLIC BUILDING.

A new P.O. box screen with new P.O. fittings, a revolving door, window shades and wire guards, all on ground floor, were provided, and the post office was cleaned, painted and tinted, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

WOODSTOCK.

PUBLIC BUILDING.

A hand vacuum cleaner was supplied and minor repairs effected, under the vision of Thos. H. Hastings, clerk of works, Toronto, Ont.

ARMOURIES.

The stone ramp of side entrance steps was rebuilt and the roof repaired, under the supervision of Thos. H. Hastings, clerk of works, Toronto, Ont.

PROVINCE OF MANITOBA.

BRANDON.

PUBLIC BUILDING.

Additional heating surface was fitted up in several rooms, the P.O. screen was shifted and a sortation case and two stools were supplied, under the supervision of J Ernest Cyr, resident superintendent, Winnipeg, Man.

LAND OFFICE.

Some filing cases were supplied, under the supervision of J. Ernest Cyr, resident superintendent, Winnipeg, Man.

EMERSON.

PUBLIC BUILDING.

This building, which was described in a previous report, has been completed, fitted up, furnished, lighted, heated, and had fences and footpaths constructed and laid.

Plans and specifications prepared by this department.
Clerk of works, F. Smith.
Contractor, S. Brown.
Contractors for fittings, Oshawa Interior Fittings Co.

PORTAGE LA PRAIRIE.

PUBLIC BUILDING.

Alterations of heating system were made, under the supervision of J. Ernest Cyr, resident superintendent, Winnipeg, Man.

ST. BONIFACE.

PUBLIC BUILDING.

A porch was built to front door and a coal bin in basement, under the supervision of J. Ernest Cyr, resident superintendent, Winnipeg, Man.

SOURIS.

PUBLIC BUILDING.

On October 12, 1910, a contract was entered into for the construction. It is to be a two-story brick building on a concrete basement, having 40 feet frontage by a depth of 69 feet on basement and ground and a depth of 41 feet on first floor.

The basement is to be for heating apparatus, fuel and stores, the ground floor for the post office, and the first floor for the caretaker.

The partitions, floor, stairs and roof are to be wood, excepting the basement floor of concrete.

The heating is to be hot water and the lighting by electricity.

Plans, &c., prepared by this department.

Clerk of works, L. P. Brindle.

Contractors, M. A. Pigott & Sons.

WINNIPEG.

ARMOURY FOR 79TH MILITIA REGIMENT (HIGHLANDERS).

The original Dominion Lands Office, built in 1873-75, next to the old custom house on Main street, was converted into a regimental armoury by alteration of partitions and addition of others, removing doors, forming new door ways, repairing floors, altering and adding to heating apparatus and plumbing and carrying out other and minor works of repair, renewal, &c., necessary to render the building suitable for its purpose.

Plans prepared by the Department of Militia and work carried out under the supervision of J. Ernest Cyr, resident superintendent, Winnipeg, Man.

Contractors for alteration of building, J. McDiarmid Co., and Wm. Halyburton.

Contractors for heating and plumbing, Cotter Bros.

NEW POST OFFICE BUILDING.

Four cabinets and a number of window awnings were supplied for the Railway Mail Service, as also one screen for the lands office, a plate glass revolving entrance door, stools for the letter carriers and clock.

A considerable number of filing cases and some furniture were supplied in Lands office.

Repairs were made to heating boilers, additional steam radiators were fitted up in the post office, new brass valves made to heating; grill work was supplied for registration branch to post office, a considerable number of filing cases and some furniture were supplied to the Dominion Lands office; alterations of lands office counter were made; a quantity of furniture was supplied to the various offices, and repairs were effected to elevator, blinds, carpentry, joinery, glazing, plumbing, furniture and fittings.

Work supervised by J. Ernest Cyr, resident superintendent, Winnipeg, Man.

OLD POST OFFICE BUILDING.

This building is occupied by the Customs house, Assistant Receiver General's office, the Inland Revenue office and the Indian Affairs office. To accommodate these depart-

ments, the building was rearranged and furnished with a new elevator, heating, plumbing and lighting. A number of lights were installed and some fittings and furniture supplied, under the supervision of J. Ernest Cyr, resident superintendent, Winnipeg, Man.

IMMIGRATION BUILDINGS, NOS. 1, 2, 3, 4 AND 5, HIGGINS STREET.

General repairs were made to heating, lighting, plastering, eaves-troughs, door, &c., and a rug, some linoleum and furniture were supplied, all under the supervision of Jos. Greenfield, resident superintendent, Winnipeg, Man.

POSTAL STATION NO. 1.

This is a rented building situated in the Canadian Pacific railway terminal buildings.

RAILWAY COMMISSION OFFICES.

These are rented offices in the Traders' bank, 433 Main street. A filing cabinet and a water cooler were supplied and some repairs made to furniture, under the supervision of J. Ernest Cyr, resident superintendent, Winnipeg, Man.

WEIGHTS AND MEASURES.

This is a rented suite of offices in the Dingwall block, Alexander avenue.

PROVINCE OF SASKATCHEWAN.

BATTLEFORD

PUBLIC BUILDING.

On 19th October, 1910, a contract was entered into for the construction of a two stories and attic brick building with stone dressings and a stone faced concrete basement having a frontage of 58 feet on Second avenue by 37 feet in depth and a one story adjunct on a stone-faced concrete basement 15 feet 6 inch frontage by 41 feet in depth forming a continuation of the frontage of the building. On the angle of the main frontage, farther from the adjunct, is to be a four story and basement tower 12 feet square. The basement of the main building is for the furnaces and fuel, of the adjunct for storage; the ground floor of the main building is for the post office, stairway hall and two entrance vestibules, that of the adjunct for examining warehouse, weights and measures and lavatories; the first floor is for Customs offices and Inland Revenue offices, while the attic is to be for caretaker's apartments.

Plans, &c., prepared by this department.

Clerk of works, W. R. Latimer.

Contractors, M. A. Pigott & Sons.

ESTEVAN.

PUBLIC BUILDING.

This building, which was described in my last annual report, is completed.
Plans, &c., prepared by this department.
Clerk of works, G. F. Faulkner.
Contractors, Snyder Brothers.
Contractors for lighting, N. W. Electric Company.
Contractors for heating, Winnipeg Light, Heat and Power Company

INDIAN HEAD.

FORESTRY FARM.

The basement of superintendent's house was floored in cement: the foreman's house was altered and improved throughout and had a new furnace and plumbing installed.

Works supervised by W. S. Mollard, clerk of works, Saskatchewan and Alberta, Regina.

PRINCE ALBERT.

SASKATCHEWAN PENITENTIARY WORKSHOPS.

This building which was described in my report of last year is still in progress of construction.

Plans, &c., prepared by this department.
Clerk of works, F. W. Dickenson.
Contractors, The Saskatchewan Building Construction Co.

MAPLE CREEK.

PUBLIC BUILDING.

An acetylene lighting system and a building for the generator plant were constructed; the cellar drains were overhauled and altered and a drain put in therefrom to street sewer.

Works supervised by W. S. Mollard, clerk of works, Saskatchewan and Alberta, Regina.

NORTH PORTAL.

IMMIGRATION HALL.

An immigration station is being constructed under the supervision of W. S. Mollard, clerk of works, Saskatchewan and Alberta, Regina.

Contractors, McKenzie and Prevost.

QUARANTINE STATION.

This building was constructed under the supervision of W. S. Mollard, clerk of works, Saskatchewan and Alberta, Regina.

Contractors, McKenzie and Prevost.

A car platform for the use of the station was built by the C.P.R.

REGINA.

POST OFFICE.

Steel fittings for vault, two large window shades, and electric lighting in stamp vendors office were installed and an office for the stamp vendor was constructed.

Works supervised by W. S. Mollard, clerk of works, Saskatchewan and Alberta, Regina.

PUBLIC BUILDING.

Furniture and fittings were supplied to the Dead Letter office, Health of Animals Branch, inspector of Gas and Electricity, &c., and extra heating was installed in the examining warehouse.

Works supervised by W. S. Mollard, clerk of works, Saskatchewan and Alberta, Regina.

PROVINCE OF ALBERTA.

MOOSEJAW.

PUBLIC BUILDING.

Furniture was supplied for the P. O. Inspector's office, filing cabinet for the Dominion Lands office and extra radiators, storm and sash furniture to the P. O. Inspector's office, and minor alterations were made to heating, wiring, roof, &c., under the supervision of W. S. Mollard, clerk of works, Saskatchewan and Alberta, Regina.

SASKATOON.

PUBLIC BUILDING.

Concrete footpaths and steps were laid on 21st Street side of building; two desks were supplied to post office inspector office, linoleum counter screen and a water filter to customs office, all under the supervision of W. S. Mollard, clerk of works, Saskatchewan and Alberta, Regina.

IMMIGRATION HALL.

Repairs were effected to roof of kitchen, windows and fence, under the supervision of W. S. Mollard, clerk of works, Saskatchewan and Alberta, Regina.

PROVINCE OF BRITISH COLUMBIA.

LADYSMITH.

PUBLIC BUILDING.

The town having built a public sewer, the septic tank of this building was connected therewith, under the supervision of Wm. Henderson, resident architect, Victoria, B.C.

NANAIMO.

PUBLIC BUILDING ADDITION.

On 22nd December, 1910, a contract was entered into for the construction of a two-story addition to the rear of the post office portion of the building, 47 feet broad by 32 feet deep, the full height of the building, to be constructed of the same materials and in similar style to the original building. The rear stone wall of the building, upon which the addition abuts, is to be removed and iron columns and girders substituted, the ground floor portion being made continuous with that of the original post office. The first floor of the addition is to accommodate the Fisheries Department. The heating, lighting, water service and drainage are extensions of the original services.

Plans, &c., prepared by this department and work supervised by Wm. Henderson, resident architect, Victoria, B.C.

Contractor, Alexander Henderson.

NEW WESTMINSTER.

PUBLIC BUILDING.

The customs offices and hall on ground floor, the second floor and that part of the third floor occupied by the Public Works Department, as well as the outside doors, were painted or varnished. Cork linoleum was laid in all the halls. Ten steel filing cases were supplied the Land Office; a large bag rack to the post office, and repairs effected to the plumbing, heating and electric lighting, all under supervision of Wm. Henderson, resident architect, Victoria, B.C.

INDIAN AND FISHERIES BUILDING.

The walls and ceilings, throughout, were painted three coats, the whole of the woodwork was revarnished and the chief inspector's office was completely refurnished, all under the supervision of Wm. Henderson, resident architect, Victoria, B.C.

PRINCE RUPERT.

QUARANTINE STATION.

Hospital Building.

On 9th March, 1911, a contract was entered into for the construction of a wooden building consisting of a two stories administration block, 36 feet by 34 feet, and two one-story adjunct wards, one 29 feet long by 24 feet broad, containing six beds, a bath-room and a W.C. room, and the other four beds, a bath-room and a W.C. room. There is to be a verandah 6 feet in breadth about both wards. The administration block has, on the ground floor, a kitchen, a living room, a bath and operating room, a nurse's room, a linen closet, a pantry and an entrance stairway hall; the first floor has three bedrooms, two closets and a stairway hall.

Plans, &c., prepared by this department.

Clerk of works, P. Lorinzen.

Contractors, Anderson & McKinna.

VANCOUVER.

NEW PUBLIC BUILDING.

This building, which was described in a previous report, is completed; fitted with hot water heating, electric light wiring, striking tower clock, office fittings, furniture, &c.

ORIGINAL POST OFFICE, ETC., BUILDING.

This building was gutted, the heating, plumbing and electric lighting were entirely renovated and the building fitted up and furnished, complete, to accommodate the assay office and express offices on ground floor; inland revenue on first floor, and on second floor, the weights and measures, port warden, shipping master and inspector of electric lighting.

VERNON.

PUBLIC BUILDING.

On 12th May, 1910, a contract was entered into for the construction of a two stories and attic brick building with stone dressings on a stone-faced concrete basement having a frontage of 61 feet on Eighth street, at its intersection with Barnard street by 40 feet in depth and a one-story brick adjunct on a stone-faced concrete basement 15 feet frontage by 41 feet in depth, faced at the farther end from the street intersection. On the angle of the building, corresponding to the street corner, is a four story and basement tower 12 feet square. The basement of the main building is for the furnaces and fuel, of the adjunct for storage; the ground floor of the main building is for the post office, stairway hall and two entrance vestibules, that of the adjunct for examining warehouse, weights and measures and lavatories; the first floor for Customs and Inland Revenue offices, while the attic is for the caretaker's quarters.

Plans, &c., prepared by this department.

Clerk of works, F. B. Cossett

Contractor, W. A. Coryderman.

VICTORIA.

MARINE BUILDING (OLD CUSTOM HOUSE).

The offices of the steamboat boiler inspector, the inspector of hulls, the resident engineer and three offices on second floor were repainted three coats and had woodwork varnished; two rooms were laid with cork linoleum, and five grates in various rooms were repaired and reset, all under the supervision of Wm. Henderson, resident architect, Victoria, B.C.

OLD POST OFFICE BUILDING.

The walls of the telegraph office were painted three coats and office furniture was supplied, under the supervision of Wm. Henderson, resident architect, Victoria, B.C.

PUBLIC BUILDING.

An incinerator for burning waste paper was constructed in basement; a fire-escape was put up on outside; two new safes and grille enclosures were provided for tellers of savings banks; a room for heavy weights was prepared in basement; the general delivery and the registry office were enlarged and new desks placed for the money order and registry offices; the walls and ceilings of the ground floor and two rooms for the gaugers were painted three coats, and the woodwork together with the woodwork of screen and fittings were varnished. General repairs were made to lighting, plumbing, heating, elevators and drains.

Work done under the supervision of Wm. Henderson, resident architect, Victoria, B.C.

WILLIAMS HEAD.

QUARANTINE STATION.

The comptroller's (formerly caretaker's) residence had a room added, new drains laid and the chimney repaired, and new drains were laid in assistant superintendent's residence, isolation hospital, second-class hospital, first-class hospital, laundry, cottage, laboratory, watchman's cottage, superintendent's residence and Japanese building. New fire places were built in first-class hospital, social hall and Chinese building, and chimneys were repaired and had addition in Chinese and Japanese buildings and the laundry. Concrete verandah platform and steps were put up at the captain's and electrician's residences. Two new corridors were put in the first-class hospital and the plumbing throughout all the buildings at the station was repaired and in part renewed.

Work done under the supervision of Wm. Henderson, resident architect, Victoria, B.C.

YUKON TERRITORY.

PUBLIC BUILDINGS.

General repairs and maintenance of the various public buildings throughout the territory were effected, under the supervision of Geo. R. Smith, clerk of works for Department of Public Works, Yukon Territory.

LIST OF YUKON PUBLIC BUILDINGS.

Dawson—Administration Building.
Dawson—Government House (Commissioner's residence).
Dawson—Post Office.
Dawson—Court House.
Dawson—Government Warehouse.
Duncan Creek—Mining Records Office (rented).
Glacier Creek—Mining Records Office.
Carcross—Mining Records Office (rented).
Kluhane—Mining Record Office.
Indian River District (rented).

Vancouver, B.C., Public Building.

PART IV

CHIEF ENGINEER'S REPORT

ON

HARBOUR AND RIVER WORKS

INCLUSIVE OF

GRAVING DOCKS AND DREDGING OPERATIONS

ALSO

ROADS, BRIDGES AND SURVEYS THROUGHOUT THE DOMINION.

REPORT OF THE CHIEF ENGINEER.

DEPARTMENT OF PUBLIC WORKS OF CANADA,
CHIEF ENGINEER'S OFFICE,
OTTAWA, August 8, 1911.

R. C. DESROCHERS, ESQ.,
Secretary,
Department of Public Works.

SIR,—I have the honour to submit the annual report on the various works under my charge during the fiscal year ended March 31, 1911.

These works comprise the construction and repair of wharfs, piers, breakwaters, dams, weirs, bank and beach protection works; the improvement of harbours and rivers by dredging; the construction, maintenance and operation of government dredging plant; the construction and maintenance of graving docks; the construction, maintenance and working of slides and booms; the construction and maintenance of interprovincial bridges and approaches thereto, and of bridges on highways of federal importance in the Northwest Territories and the maintenance of military roads; also hydrographic and ordinary surveys and examinations, inclusive of precision levelling and geodetic measurements which are required for the preparation of plans, reports and estimates; the testing of cements, &c.

I have the honour to be, sir,
Your obedient servant,

EUG. D. LAFLEUR,
Chief Engineer.

PROVINCE OF NOVA SCOTIA.

ABERCROMBIE POINT.

Abercrombie Point, Pictou county, is on the south side of Pictou harbour, between the entrance of the East and Middle rivers, and nearly opposite the town of Pictou.

A wharf built by the harbour commissioners in 1888, and repaired by this department in 1891-2 (originally a block and span structure 20 feet in width, with a T head, extending 505 feet to four feet at extreme low water, on flats dry at low water to within 170 feet of the outer end), consisted, when its reconstruction was undertaken, in 1908-9, of an approach of brush and stone 77 feet in length and the remains of 13 cribwork blocks of which two were in the T head.

Spring tides rise 6 feet; neaps 4 feet.

In 1908-9, the sum of $1,831.41 was expended in procuring all the native timber and iron required for reconstructing the block and span work with the exception of the floor stringers, and covering, and reconstructing the four inner blocks from ground level.

During the fiscal year 1909-10, the sum of $5,714.56 was expended, $2,815.45 in procuring the creosoted timber which was paid for out of the appropriation for 'creosoted timber,' and $2,899.13 in reconstructing the nine outer blocks (two from three feet above extreme low water, four from ground level, and three at outer end, from two feet below extreme low water); in placing new floorstringers, covering the guard rails over the whole of the block and span work, and in repairing the approach at its junction with the inner block.

During the fiscal year 1910-11, the sum of $6.75 was expended in repairs to the approach, reconstructed in 1909-10, to make it available for traffic.

The work was in progress July 18th to 19th inclusive.

Total expenditure by the department to March 31, 1911, $8,416.94.

ADVOCATE.

Advocate Harbour is a thrifty and important town situated on Grenville bay, 30 miles south west of Parrsboro. It has a population of about 1,000, who are miscellaneously engaged in the industries of farming, lumbering, mining and fishing.

In the fiscal years 1898-99, and 1899-1900, a wharf 400 feet in length, 20 feet in width, with a head 40 feet in width and from 12 to 16 feet in height, was constructed by the department. It is constructed of pile trestle bents 10 feet apart, thoroughly braced, bolted, and waled. The outside lengths, together with outside end of this work, was close-piled, but the close-piling was not effective, and, in the succeeding year, this part of the work was sheathed. In the years 1904-05, this work was widened an additional 12 feet on its inside, which further width also consisted of pile trestle bents.

During the past fiscal year, the amount of $795.34 was expended in recovering the wharf. For this amount, the older portion of this work for its entire length, was replanked, which portion was 20 feet in width, using three inch planking for the same. New guard rails, outside stringers and one-third of the old floor stringers were replaced. Ten new fenders were also put in position.

The work was begun on the 27th April, 1910, and completed on the 18th July, 1910.

Tides rise here, spring, 38 feet; neap, 31 feet.

AMAGUADEES POND.

Amaguadees Pond (Castle Bay)) Cape Breton county (North), is on the northern side of East bay, the eastern arm of the Great Bras d'Or lake, and is about three miles from Benacadie Point, at the entrance to the bay.

The work consists of a block and span wharf with creosoted timber sub-structure 120 feet long and 20 feet wide, with an 'L' on the eastern side of its outer end, 20 by 20 feet; of a bridge 100 feet long and 20 feet wide, including approaches, across the outlet of the pond, and of a warehouse 10 by 16 feet on the outer end of the wharf for the storing of goods shipped and landed by the S.S. 'Blue Hill,' which calls here fortnightly during the season, and makes connections with the Intercolonial railway at Grand Narrows.

For the purpose of extending the wharf, which was shoaling up with gravel at the outer end, during the year 1908-9, the sum of $527.37 was expended in procuring the native timber, iron and ballast required, and during the fiscal year 1909-10, the sum of $1,796.40 was expended in procuring the creosoted timber necessary to construct the extension of the wharf.

During 1910-11, the sum of $1,291.33 was expended in procuring the balance of the materials required for the extension of the wharf, and in its construction and completion, excepting some ballasting. The extension is 72 feet long and 20 feet wide, and consists of an outer, round timber cribwork block, 40 feet long, with creosoted timber sub-structure, protected by close sheathing on the seaward faces, and connected with the outer end of the old wharf by a span, 32 feet in length, supported in the centre by a pile-bent.

Total expenditure on this work to March 31st is $8,304.12.

Work was in progress from June 21st, to July 30th; it was resumed on September 13th, and completed on September 30th, 1910.

AMHERST.

Amherst Harbour is situated at the head of Chignecto bay, near the mouth of the LaPlanche river, about 2½ miles from Amherst Town. The town of Amherst is probably the most important, prosperous and thriving industrial town in the province of Nova Scotia. It is a manufacturing centre of some magnitude, and efficient water transportation would greatly augment its future advancement. It has a population of about 10,000.

In the year 1904, a pile wharf was constructed, which consists of a stem, running from the dyke to the edge of the channel, 249 feet in length, and 36 feet wide on top, and the wharf proper, which begins at the outer end of this stem and runs seaward a distance of 300 feet along the inner edge of this channel. This wharf proper is 50 feet wide, and has a common height of 44 feet on its outer face and 28 feet on the inner face.

In the fiscal year 1907-08, another wharf was constructed, situated about 350 feet farther up stream than the old work. This second pier is 360 feet long, 64 feet wide, and has a height along its outer face of 28 feet. It is constructed of pile trestle bents, separate 8 feet apart, whilst the piles in these bents are distant from each other, 7½ feet measured between centres. The front of this work and the ends are close-piled, whilst Pier No. 1 is sheathed with 4-inch sheathing, and double fendered. In the fiscal year 1909-10, a balance of an appropriation which was voted for repairs to pier number one, an amount of about $250, was expended in beginning a berth along the outer face of pier number two, and during the present fiscal year, the sum of $1,461.50 was expended on the completion of this berth.

This berth is 360 feet in length, 14 feet in width and has a height of 4 feet. In every 6 feet of its length, a short pile about 14 feet long was driven to which, by means of several strands of stout wire, mattresses and brush were fastened. Upon this brush about three feet of mud were deposited. These mattresses consisted of small trees, from 3 to 5 inches in diameter, (at the large end), bound together with wire, and laid in sections of 12 feet in length. They were about two feet in thickness when first laid down, but through pressure of the materials deposited upon it, they became about one foot in thickness.

This work was performed under difficulties caused by tides and excessive scouring, which necessarily rendered its cost greater then it would have been in most other locations. However, the work has been most satisfactorily performed.

A certain amount of dredging is required at the entrance to this harbour; several reports upon which have been made but the question of how this work can be most advantageously and efficiently performed has no doubt delayed its execution.

Work on these berths commenced on the 24th March, 1910, and was completed on the 19th May, 1910. Tides rise here, spring 40 feet, neap 33 feet.

ANNAPOLIS.

Annapolis Royal, Annapolis county, is the oldest town in the province of Nova Scotia, having been founded in 1605. It is beautifully situated at the head of Anna-

polis basin and on the south side of the Annapolis river. It has a population of about 2,000 and is the centre of one of the most fertile district of Nova Scotia.

In 1905 to 1908, the Department expended $9,346.22 in building a landing pier on the site of a very ancient one, (for particulars see Annual Report 1909-1910.)

In 1909-10, the sum of $60 was expended in removing a number of boulders from the steamer-berth along the outer face of the pier, by means of a clam-shell dredge, forming part of the plant of the contractors for the ice-piers.

Ice-Piers.

In 1907-08, the Department expended the sum of $12,942.59 in the purchase and delivery of creosoted timber for the purpose of constructing ice-piers in the river, about a quarter of a mile above the town wharfs, with the object of protecting shipping from floating ice.

On the 18th of May, 1909, a contract for the construction of the first three piers, on the Annapolis side of the river, was signed by the Nova Scotia Construction Company of Sydney, N.S., for the sum of $46,736.

Work was begun early in June, 1909, and at the close of the season, about the end of December, 1909, the three cribs were in place and ballasted. The concrete top of pier No. 2 was completed within one foot of the top and the riprap around the bases of piers 2 and 3 was finished.

Work was resumed on the concrete about the 25th of March, 1910, and finished early in August, 1910.

The riprapping of piers 2 and 3, which was done by the contractors, but not as a part of their contract for the piers, cost $2,560.

In 1910-11, the sum of $676.31 was expended in day labour in sheathing, with six inch birch, and in corner plating with half inch iron, the upper ten feet in height of the cribwork base of pier No. 3, as a protection against floating ice. This expenditure also included the placing of about 60 cubic yards of riprap around the base of pier No. 1.

The construction of these piers was a work of exceptional difficulty, owing to the depth of water; the great rise and fall of tide, from 25 to 30 feet, and the consequent high velocity of the tidal current, up-stream on the flood and down-stream on the ebb, which reached a maximum at spring tide of 9 feet per second.

The first operation was the excavation of the foundations. At pier No. 1, this was done by hand digging at extreme low water. At piers 2 and 3, a clam-shell dredge was employed, but owing to the force and velocity of the current, it could only operate for about two hours, or less, at or near the time of low water. Fortunately the bottom was hard red clay, and only sufficient depth of excavation, from 2 to 4 feet, was required to bring the site of each crib to a level surface, and to guard against scour, rendered possible by the disturbance of the regimen of the stream. The cribs of 10 by 12 squared creosoted timber were framed on shore just below high water mark, and launched from ways in the same manner as a ship. After launching they were taken in hand individually by a powerful tug, towed at low water to position, and sunk by the aid of stone ballast rapidly thrown in from scows alongside. Owing to the rapid rise and fall of tide it was not possible to completely fill a crib with ballast at the low stage of any one tide, and its retention in position during the period from one low tide to the next, against an end pressure of 60 to 80 tons, was effected by the use of six heavy steel hawsers, three from each end, attached to anchors, weighing from two to four tons each, and placed, three up-stream and three down-stream. As stated above, the whole three cribs were filled with ballast by the end of the working season of 1909, and the concrete superstructure of pier No. 2 was completed to within 1 foot of the top. On piers 1 and 3 there was no concrete. In April, 1910, the concrete work was resumed and carried forward, with more or less delay from various causes, to completion in August, 1910.

The three piers are similar in design, rectangular in horizontal section, battering uniformly from top to bottom on all four sides one inch to the foot. The upper 27 feet in height of each pier is of concrete. Pier No. 1 is 27 feet by 8 feet on top; No. 2, 27 by 10 feet, and No. 3, 27 by 13 feet. The crib substructure of No. 1 pier is 4 feet high; of No. 2, 18½ feet, and of No. 3, 46 feet. The top of each crib is about 5 feet above L. W. O. S. T., and the top of the concrete superstructure 5 feet above H.W.O.S.T. The distance from pier No. 1 to pier No. 2 is 105 feet, and from No. 2 to No. 3 is 157 feet.

A contract for the construction of the next two piers, Nos. 4 and 5, has recently been awarded for the sum of $37,300. They will be of similar form and design to the first three. The sheathing of pier No. 3 was carried out by day labour, in the months of November and December, 1910.

ARICHAT.

Arichat, the shiretown of Richmond county, is situated on the northern shore of Arichat harbour, on the southern side of Madame island.

The harbour, which is spacious, is well sheltered by outlying islands and has two entrances, of which the western, although only about 600 feet in width, is the easiest to make; the southern entrance is about 1,800 feet wide, but it lies between shoals.

On July 13, 1910, a contract was entered into with W. J. Landry, for the construction of a wharf and warehouse, for the sum of $16,176.

The work under contract consists of a stone approach 131 feet in length and 30 feet wide; of a block and span wharf, 144 feet in length and 30 feet wide; with an 'L', also consisting of block and span work, 90 feet long and 50 feet wide; and of a warehouse 80 feet long and 25 feet wide, placed on the outer end. The channel face of the wharf will have a length of 120 feet, with a depth of 19 feet at low water; and the blocks, which are constructed of round timber, will have creosoted timber substructure.

The work of construction was commenced on September 23, and continued until November 15, when it was suspended for the winter, and during that period the stone approach was completed, and all the creosoted timber and ballast flooring required for the construction of the wharf were delivered.

The expenditure for the fiscal year 1910-11, is $9,897.39.

ARISAIG HARBOUR.

Arisaig, Antigonish county, is on the south-eastern shore of Northumberland Strait, 15 miles south-east from Cape George.

The works include a pier on the northern and a breakwater on the southern side of a small cove.

The pier, commenced by the provincial government prior to confederation and extended and improved by the Department, is 544 feet in length including an approach 272 feet in length, (of which the inner 117 feet is of brush and stone and the outer 155 feet of stone with stone retaining walls), protected on both sides by a stone talus, and a crib-work extension, 272 feet in length and from 40 to 44 feet in width, strengthened and protected on the seaward side by a 24 by 24 foot crib-work block at the outer end, and by quarried stone sloping, 3 to 1, from high water level. The depth at extreme low water, at the outer end, is 11 feet.

Spring tides rise 5 feet.

During the fiscal year 1910-11, the sum of $4,786.02 was expended in repairing about 60 feet of the roadway and about 80 feet of the seaward face of the wharf; also in reballasting and repairing the 'L' at outer end of work and in procuring all the creosoted timber and part of the ballast and native timber required for a proposed

extension which is to be 57 feet by 20 feet in line of work extending to 12 feet at L.W.S. with creosoted timber sub-structure to half tide and sheathed on all faces with creosoted and hardwood sheathing.

Work was in progress June 25th to 30th; July 2nd to 25th; October 1st to 20th, and November 2nd to 25th.

Total expenditure to March 31st, 1911, $49,660.45.

BAILEY'S BROOK.

Bailey's Brook, Pictou county, is a large stream emptying into the Northumberland Strait at a point 10 miles to the eastward of the entrance to Merigomish harbour, and 6 miles to the westward of Arisaig.

The channel protection works undertaken in 1902-3 and completed in 1904-5, included a breakwater, on the eastern side, 240 feet in length and 20 feet in width on top, extending to low water mark, and a shear-dam on the western side, 130 feet in length and 12 feet in width, founded at low water.

In 1905-6 and 1906-7, the sum of $3,982.17 was expended in procuring materials and in constructing an extension of the shear-dam 164 feet in length and 17 feet in width with an 'L' at the outer end 14 feet in length.

In 1908-9, the sum of $4.143.88 was expended in constructing an extension of the protection work on the eastern side of the entrance, 130 feet in length and 20 feet in width; in constructing pile and brush work on crest of beach, extending 90 feet from a point near the inner end of and nearly at right angles to the protection work, and 95 feet of brush and stone work in extension inward of the protection work.

During the fiscal year 1910-11, the sum of $842.59 was expended in close piling the outer 50 feet of the seaward face of the pile and brushwork, and in the construction of a 100 feet extension of pile and brush work.

Work was in progress August 10th to 23rd, and October 1st to 18th.

BARACHOIS.

Barachois, Victoria county, is a small settlement at the mouth of the Barachois river, on the northern side of St. Ann's Bay, about 3 miles to the eastward of the entrance into St. Ann's harbour.

The mouth of the river forms a small boat harbour, protected by an outlying beach, and is connected with the bay by a shifting channel through a gravel bar.

For the purpose of preventing the mouth of the channel from sanding up from the eastward, a breakwater 232 feet in length and consisting of crib-work, was constructed on the eastern side of the entrance; and in order to confine the river's channel and secure a greater depth of water over the bar outside, a training pier consisting of piles of brush and stone, 230 feet in length were constructed on the eastern side of the entrance, 200 feet from and parallel to the breakwater.

By the construction of these works, the channel was very much improved, and for the purpose of rendering the works still more effective, during 1910-11, the sum of $797.72 was expended in extending the training pier a distance of 80 feet, with round timber crib-work.

The latter work was commenced on November 1st, and completed on November 30th, 1910.

Total expenditure on this work to March 31st, 1911, is $5,235.95.

BARRINGTON HEAD.

Barrington Head is a settlement of about 850 people, situated at the extreme head of Barrington Bay, which is distant 45 miles south-east of Yarmouth, and 30 miles south-west of Shelburne. It is 10 miles north-east of Cape Sable, the most southerly point in Nova Scotia. The people are principally engaged in farming and lumbering.

In the fiscal year 1900-01, a wharf was constructed in order to afford some means for the people to land their supplies, which hitherto they were compelled to either boat or team at a very large extra expense. The wharf consists of an approach in the form of a rock bank, 100 feet in length, 29 feet in width on top, and has a height of ten feet at its outer end. Besides this, there are four stone filled open-faced log cribs, 120 feet in length. This block and span work has a width of 28 feet on top, and a height at the outer end of 17 feet. During the past year, the sum of $1,649.93 was expended on the work, in constructing an extension to the wharf. This extension is 70 feet in length, the first 30 feet of which is 28 feet wide, whilst the latter 40 feet is 50 feet wide. The whole extension is built of pile trestle bents, separated 10 feet apart measured from centres. The wharf is in a first-class state of repair.

Work was commenced here on August 26, and completed November 29, 1910.

Tides rise here, spring 9 feet and neap 6½ feet.

BASSWOOD BEACH.

Basswood Beach is a crescent shaped beach of about a mile and a quarter in length, situated immediately south-east of the settlement of Baccaro. This beach has been damaged to a great extent by being denuded by the action of the sea, so that at high tides, the entire road and a portion of the people's fields residing at Baccaro proper, would be overflowed. In order to prevent this, in the year 1909-10, a piece of beach protection was constructed, 900 feet in length, 8 feet wide on top, with an average height of 5½ feet. After this extension had been constructed, it was found that it was too low, and was not large enough to completely serve the purpose for which it was intended, so that an additional sum of $1,200 was appropriated for the purpose of remedying these two faults.

During the last fiscal year, the sum of $1,199.99 was expended, and the results obtained therefrom were as follows:

The old work for 300 feet of its length was raised an additional 1½ feet, besides this, about 300 tons of extra ballast were placed in at different places along its surface. An extension was built, which is 160 feet in length, 8 feet in width on top, with a bottom width of about 10 feet, and from 8 to 9 feet in height.

Work was commenced August 1, and completed September 29, 1910.

The tides rise here, spring 8½ feet, neap 6 feet.

BATTERY POINT.

Battery Point, Annapolis county, is a fishing settlement of about 150 people, situated on the east side of Digby Gut, about 4 miles northeast from the town of Digby, and 15 miles southwest from the town of Annapolis.

In 1904-05, the sum of $1,987.32 was expended in constructing a breakwater for the protection of the fishing fleet, comprising 40 to 50 boats. The work was 90 feet long, 26 feet wide, 8 feet high at the shore end and 19 feet high at the outer end. The approach is a stone embankment, 38 feet long, 26 feet wide and from 4 to 8 feet high.

In 1905-06, the sum of $2,000 was expended in constructing an extension to the breakwater. The new block is 60 feet long, 26 feet to 30 feet wide and from 20 to 29 feet high, very strongly built of round-log cribwork, furnished with a break on the seaward side, close-sheathed on the seaward side and outer end and on the inner or southern side, provided with a flight of steps for the accommodation of boats.

In 1906-07, the sum of $668.40 was expended in completing the new block.

Spring tides rise 27 feet, neaps 23 feet.

In 1910-11, the sum of $3,053.69 was expended in building a second extension, 40 feet long, 30 feet wide on top and from 27 to 32 feet high. The lower 6 or 8 feet of the sides and outer end of the new block were sheathed with 4 inch creosoted plank, as a protection against the limnoria.

The new extension was begun in the middle of June, 1910, and finished late in October. The creosoted sheathing was put on in the month of January, 1911.

BAYFIELD.

Bayfield, Antigonish county, is on the southern shore of St. George's bay, 15 miles westward of the northern entrance to the strait of Canso.

There are two works in this place: a wharf 442 feet in length, built in 1892-4, and a breakwater (crib-work core and stone embankment), 760 feet in length, commenced in 1879 and completed in 1888.

Repairs and improvements to the breakwater, including the construction of a concrete wall, 525 feet in length over the inner face of the crib-work core (150 to 675 feet from the inner end), and the reconstruction of the stone covering on each side of the wall, undertaken in 1903-4, were completed in 1904-5 and 1905-6.

In 1906-7, the sum of $1,799.73 was expended in extending the concrete wall 70 feet, and in reconstructing and grouting with concrete the covering of the talus on the northern side of the concrete wall, 150 to 675 feet from the inner end, which had been damaged after completion of repairs in 1905-6, and on the northern side of the extension.

During the fiscal year 1907-8, the sum of $1,799.47 was expended in constructing a 40 foot extension of the concrete wall with the outer end or 'head' 10 feet in line of work by 14 feet, founded 1½ feet below low water and built up 5½ feet to high water level; in grouting the covering on each side of the extension, and in extending the concrete wall from the inner end inwards 20 feet. From the 'head' inwards, the 40 foot extension of the concrete wall is stepped up to 5 feet above high water or to the level of the top of the concrete wall, previously constructed.

In 1908-9, the sum of $1,188.96 was expended in reconstructing the faces and top of the 40 foot extension of the concrete wall, which had disintegrated; in repairs to the stone covering on both sides of the concrete wall from the outer end inwards, and in placing large stones at toe of slope on the seaward side over a distance of about 400 feet from the outer end inwards.

During the fiscal year 1910-11, the sum of $2,587.54 was expended in reconstructing the inner slope of the breakwater; in repairs to the outer slope, and in placing large stones at toe of slope on the seaward side.

Work was in progress September 12th to 14th, and 26th to 30th; October 1st to November 30th; December 1st to 3rd; 12th to 15th, and January 3rd to 16th.

Total expenditure on breakwater to March 31, 1911, $33,801.72.

BAY ST. LAWRENCE.

Bay St. Lawrence, Victoria county, is on the northern extremity of the island of Cape Breton.

At the head of the bay, and separated from it by a beach of sand and gravel, there is a small lake or pond, ¾ of a mile in length and half a mile in width, with a considerable depth of water.

In order to render the pond accessible to fishing boats, for a harbour, during 1908-9, a contract was entered into for the cutting of a channel through the beach to 2 feet below low water and 50 feet wide at the bottom and the construction of channel protection piers on either side of the seaward entrance to the channel, each 290 feet in length and extending to 8 feet at low water, and consisting of crib-work with creosoted timber sub-structure; of the work under contract, up to the end of that year, the piers were fully completed and about one half of the proposed excavation of the channel was done.

During 1909-10, the inner end of the western pier, which had settled, was raised to its original height and extended inwards a distance of 30 feet, for the sum of $700.

During the present fiscal year, the sum of $3,615.25 was expended, under contract, in the construction of pile, brush and stone piers, 290 and 254 feet in length, on the sides of the channel through the beach, to prevent the gravel from being washed into the channel.

Work was commenced on August 2nd and completed on October 31st, 1910.

BEAR COVE.

Bear Cove, Digby county, is a slight indentation, not more than 400 feet deep, in the coast of the mouth of St. Mary's Bay, Bay of Fundy. It is situated 23 miles north of Yarmouth, and equi-distant from Cape Cove, on the south, and Meteghan on the north, being about five miles from each. The population of the settlement, within a radius of a mile, comprises a couple of hundred people, chiefly dependent for a living on fishing, though some little farming is carried on.

In 1906-07, the department expended the sum of $5,748.92 in building a breakwater. The work, which is of substantial stone-filled crib-work, is (the crib-work portion) 160 feet long, from 20 to 28 feet wide and from 8 to 16 feet high. The rock bank approach is 120 feet long, 20 feet wide and from 3 to 8 feet high.

In 1908-09, the sum of $599.69 was expended in replacing, with crib-work, the stone approach which had been knocked to pieces by heavy seas in the previous winter. The new work was 100 feet long, 10 feet wide and from 5 to 8 feet high. It was begun October 27th, and finished November 30th, 1908.

In 1910-11, the sum of $396.27 was expended in excavating some ledge rock from alongside the breakwater, for the purpose of affording more room for boats to strand. The excavated rock was about 200 feet long, 50 feet wide and from 1 to 3 feet deep.

The work was begun on the 6th and finished on the 31st of March, 1911.

BIG BRAS D'OR.

Big Bras d'Or, Victoria county, is a settlement on the southern side of the channel of the same name, near its entrance into the Atlantic.

The wharf, completed during 1888-89, is a block and span structure, 150 long and 20 feet wide, with an 'L' on the eastern side of the outer end, 40 by 20 feet, giving a channel frontage of 60 feet. It is constructed entirely of native timber and has a depth of 11 feet at low water, along its channel face.

Spring tides rise 3 feet, neaps 2 feet.

During 1900-1-2, the close-piling around the outer block, which had been completely destroyed by the teredo, below the line of low water, and portions of the covering and cap-timbers, which were worn and decayed, were renewed.

During 1909-10, the sum of $1,911.13 was expended in the renewal of all floor-stringers, covering the cap, and for procuring the creosoted timber required for close piling the outer block and for fenders around the inside blocks, and in placing 20 of the creosoted timber piles on the outer end face of wharf.

Out of the amounts authorized for 1910-11, the sum of $442.89 was expended in placing the creosoted close-piling on the outer end faces of the wharf, and the fenders in the approach; and the sum of $174.15 was expended in the construction of a freight shed, 12 by 20 feet, on the 'L' of the wharf.

Work was commenced on October 10th, and was completed on November 24th.

Total expenditure on this work to March 31st, 1911, is $6,996.39.

BIG HARBOUR.

Big Harbour, or Port Bevis, Victoria county, is on the northern side of the Great Bras d'Or channel, about 15 miles to the westward of its entrance into the Atlantic.

During 1904-5, a block and span wharf, with creosoted timber sub-structure, extending to 13 feet at low water, 81 feet in length and 20 feet wide, with an 'L' on the

eastern side of its outer end, 20 by 20 feet, was constructed and was connected with the public road by a road 113 feet in length.

During the present fiscal year, the sum of $125.93 was expended in the construction of a small freight shed on the 'L' of the wharf, 10 by 16 feet.

The construction of the shed was commenced on December 1st and completed on December 16, 1910.

BIG TRACADIE.

Tracadie Harbour, Antigonish county, is on the southern shore of St. George's Bay, 11 miles west from the northern entrance to the Strait of Canso.

The work consists of a breakwater on the eastern side of the entrance to the harbour, and of a retaining wall, in extension of the breakwater inwards and along the beach, to the southward of it, to prevent scouring and undermining of the bank by tidal currents.

The breakwater extends a distance of 120 feet to the edge of the channel thence along the line of channel, outwards, a distance of 100 feet. The latter section is constructed on the remains of old work; it is 16 feet wide for a distance of 64 feet, and 20 feet wide for a distance of 36 feet, and is constructed of round timber with creosoted timber substructure. The channel retaining wall is 380 feet in length and 10 feet in width on top, built of round timber crib-work.

The outer or channel face of the retaining wall is dry at L.W.S. Spring tides rise 4½ feet.

During the fiscal year 1910-11, the sum of $849.48 was expended in sheathing 380 feet of the channel face of the crib-work with hardwood sheathing.

Work was in progress July 9th to 16th, September 23rd to 30th, and November 2nd to 8th.

Total expenditure to March 31st, 1911, is $28,888.35.

BLACK POINT.

Black Point, Richmond county, is on the southern or Atlantic shore of the island of Cape Breton, about 15 miles to the eastward of the entrance to St. Peter's canal.

On the 26th day of November 1910, a contract in the sum of $7,166 was entered into with A. W. Gerroir and K. Sweet, of Antigonish, N. S., for the construction of a breakwater on the northern side of the point, to protect the anchorage for fishing boats.

The work under contract is 378 feet in length and will extend to 6 feet at low water. The inner end for a distance of 150 feet will be 16 feet wide, and the outer end 24 feet wide, and will consist of a continuous round timber crib-work structure, with creosoted sub-structure, solidly ballasted and close-sheathed on the seaward face and outer end.

The necessary materials were procured during the winter, and construction will be commenced as early as possible in the spring.

BLUFF HEAD.

Bluff Head, Yarmouth county, is a small fishing and farming settlement of a couple of hundred people, situated on the coast of the mouth of the Bay of Fundy, about five miles from Yarmouth and about midway between Cheggogin Point on the south and Sandford on the north, or about one and a half miles from each.

In 1908-09, the sum of $2,005.17 was expended in constructing a small breakwater for the protection of the fishing fleet. The work is 130 feet long, 20 feet wide and from 4 to 9 feet high, substantially built of round log crib-work, filled with ballast and protected with a break, 4 feet high, on the seaward face.

Spring tides rise about 18 feet.

In 1910-11, the sum of $2,215.90 was expended in constructing an extension to the breakwater, built in 1908-9. The new block is 100 feet long, 20 feet wide on top and from 10 to 12 feet high, built of substantial crib-work of the usual type and provided with a break 4½ feet high on the seaward face.

Work was begun on the 1st of September and completed on the 22nd of November, 1911.

BOULARDERIE CENTRE.

Boularderie Centre, Victoria county, is on the southern side of the Great Bras d'Or channel, about 8 miles to the westward of its entrance into the Atlantic ocean, and 10 miles to the eastward of its entrance into the Little Bras d'Or lake. The works include a wharf, constructed in 1901-2, and a road, 2,100 feet in length, between the wharf and the highway, completed in 1903-4.

The wharf is 164 feet in length and 20 feet in width with an 'L' at its outer end, 20 by 20 feet. It consists of an approach, of stone, clay and gravel, 10 feet in length; an abutment 30 feet in length; two central blocks each 20 feet in length, and an outer block 24 feet in line of work by 40 feet, with three spans of 20 feet. The abutment and blocks are of round timber crib-work, creosoted to high level, and fully ballasted and fendered. The two outer blocks are protected between the fenders by close-sheathing. The depth at extreme low water, at the outer end, is 13 feet. Spring tides rise 2 feet.

During the fiscal year 1909-10, the sum of $25.02 was expended in repairing a small bridge over a water course crossing the road between the wharf and the highway.

During 1910-11, the sum of $124.82 was expended in the construction of a small freight shed, 10 by 16 feet, at the outer end of the wharf.

The construction of the shed was commenced on October 19th, and completed on November 12, 1910.

BOURQUE'S COVE.

Bourque's Cove, Yarmouth county, is a small farming and fishing settlement, of a couple of hundred people, situated about 16 miles south of Yarmouth, on the east side and near the mouth of the Tusket river.

In 1910-11, the sum of $939.61 was expended in taking down and rebuilding the upper 5 feet in height of an ancient crib-work wharf, 117 feet long, 30 feet wide and from 5 to 8½ feet high. The earth and stone approach was also raised 1½ feet for a length of 50 feet.

Work was begun the 25th of August, finished the 30th of September, 1910.

BREEN'S POND.

Breen's Pond, Antigonish county, is situated on the southern shore of St. George's Bay, near the extremity of a headland to the westward of the northern entrance to the Strait of Canso, between Harbour au Bouche and Little Tracadie, and known locally as Cape Jack.

On June 6, 1911, the sum of $8,000 was authorized for expenditure towards the construction of a breakwater estimated to cost $14,000.

The proposed work is 435 feet in length and 20 feet in width extending to 7 feet at L.W.S. Spring tides rise 4½feet. The substructure to be built of creosoted timber and the superstructure of native timber; the seaward and outer faces of the work are to be close-sheathed with 4 inch planking and the whole work to be covered with 4 inch spruce or hemlock plank.

Tenders for this work were invited between February 16 and March 21, 1911, but up to March 31 no notice of its having been awarded had been received.

BROAD COVE.

Broad Cove, is a fishing village of about 350 people, situated on the Atlantic coast of Lunenburg county, and distant about 20 miles south west by public road from Bridgewater.

The breakwater which affords shelter to about twenty fishing boats, was built in 1876 by day labour, at a cost of $4,000, of which $3,000 was contributed by the Federal and $1,000 by the provincial government. It is a well built structure of close-faced, stone-filled cribwork, 250 feet long, 22 feet wide and 12 feet high at the outer end, which is about 4 feet above H.W.O.S.T.

During the fiscal year 1910-11, the sum of $297.39 was expended in repairing the breakwater and in removing a bar of sand and gravel near the head of the wharf. Repairs were made to the planking, guard-timbers, fenders and sheathing.

Work begun October 1, completed October 31, 1910.

BROAD COVE MARSH.

Broad Cove Marsh is on the Gulf of St. Lawrence, 12 miles south from Margaree Harbour.

The wharf, on its completion in 1888, extended 400 feet to 12 feet 10 inches at extreme low water. It was badly damaged in 1894 and was subsequently carried away to within 207 feet of the inner end. In 1894-5-6, the inner 207 feet was repaired and strengthened, and in 1897-8, a small amount was expended in repairs.

When repairs were undertaken in 1904-5-6, only 100 feet of the work remained. During the years 1904-5-6, an extension 123 feet in length was constructed, and close-sheathed between the fenders on each side and at the outer end. In 1907-8, the sum of $409.60 was expended in renewing the floor stringers and covering the cap-timbers on the inner 100 feet of the wharf.

During the fiscal year 1910-11, the sum of $274.85 was expended in replacing ballast, stringers, covering and cap-timbers at the outer end of the wharf.

Work was commenced in December and completed on January 21.

Total expenditure to March 31, 1911, $21,514.62.

BRULÉ.

Brulé Harbor is situated on Northumberland Straits about 20 miles in a straight line of the town of Pictou. It is an arm of Tatamagouche Bay. The harbour is sheltered from the northeast by a long neck of land terminating at Cape John, and from the northwest by Brulé Point. Surrounding the harbour is a prosperous farming country well populated. The village of Brulé contains two stores, post office and telephone, and has a population of about 500, living within a radius of two miles. The nearest railway station is Denmark on the Intercolonial Railway, distant two miles.

During the fiscal year ending March 31st, 1911, the sum of $1,948.86 was expended in extending the wharf. The extension is 130 feet in total length, the shoreward 100 feet in length being 24 feet wide and the outer 30 feet is 35 feet wide, constructed of pile and timber trestle. There is a depth of 8 feet of water at the outer end at L. W.O.S.T.

BURKE'S HEAD.

Burke's Head, Victoria county, is on the northern side of the North bay of Ingonish, on the north-eastern coast of the island of Cape Breton.

Plan and specification for the construction of a breakwater were prepared and forwarded to the department for approval, and on January 9, 1911, a contract was entered into with Messrs. Gerroir and Sweet, in the sum of $35,490 for its construction.

The work under contract consists of a crib-work structure, 390 feet in length, with a return or 'L,' 120 feet in length, along the channel face, which is in 15 feet, at low water; for a distance of 150 feet from the inner end it will be 20 feet wide, for a further distance of 120 feet, 24 feet wide, and for the remaining distance, and for the 'L,' it will be 30 feet wide on top. All the faces of the work are to be built of squared timber, laid open-faced, with ties of round timber, creosoted to half tide, solidly filled with ballast, and the seaward face, the outer end, or channel face and the outer end of the 'L,' are to be close-sheathed between the fenders. A heavy quarried stone talus sloping 3 to 1, is to be laid along the seaward face of the work, and a road 300 feet long and 20 feet wide is to be cut along the face of the bank, from the top of the bank to the inner end of the breakwater.

CANNING.

Canning, Kings county, is a prosperous village of about 1,500 people, mostly engaged in farming and fruit raising, situated on the north bank of the Habitant river, which 2½ miles below, debouches into the Basin of Minas. It is an important station on the Kingsport branch of the Dominion Atlantic railway, which connects with the main line at Kentville, 11 miles to the south.

The construction of the crib-work wharf was begun by the department in 1904-5 and completed in 1907. (Full details will be found in the departmental report for 1909-10.)

In 1910-11 the sum of $1,999.75 was expended in continuing the construction of the down stream extension to the public wharf, begun in 1909-10. The work is 590 feet long, from 8 to 20 feet high, the upper or western half length 20 feet wide, and the lower or eastern half length 10 feet wide on top. The whole work is substantially built of crib-work and the bottom course of logs trenched into and bolted to the soft sandstone rock, on which the face of the work rests.

The expenditure not sufficing to complete the ballasting of the work, or the earth filling in its rear, a contract was awarded in the sum of $1,150 to finish the work, which was accomplished by the end of November. The total expenditure by the department to 31st of March, 1911, $39,014.95.

CAP ROUGE.

Cap Rouge, Inverness county, is a small fishing station on the Gulf of St. Lawrence, 8 miles to the northeastward of the northern entrance to Cheticamp Harbour.

The amount appropriated, $5,000, was to be applied towards the construction of a breakwater to serve as a landing place and a shelter for boats. A plan and specification for a work estimated to cost $14,000, were forwarded August 24, 1910, but up to March 31, 1911, tenders had not been called for.

The proposed work is to be 250 feet in length and 20 feet wide with a T head 20 feet in line of work by 105 feet, with creosoted sub-structure sheathed on all sides and fully ballasted. The depth at the face of the T head will be 7½ feet at low water.

Spring tides rise 4 feet.

CAPE DAUPHIN.

Cape Dauphin proper, Victoria county, is a high and precipitous headland on the eastern coast of Cape Breton island, and is the dividing point between St. Ann's Bay and the Great Bras d'Or channel, but the whole district for a distance of four miles south of the cape, is locally known as Cape Dauphin.

The amount was voted for the construction of a breakwater at Gooseberry Point, 2 miles south from the Cape, to form a small boat harbour, in accordance with a plan and report forwarded to the department on April 15, 1909, and estimated to cost $8,700.

When the place was visited on October 14, 1910, to obtain some final information required for the preparation of plan and specification, the inhabitants stated that they wanted the work built at McNeil's Point, which is ¾ of a mile north of Gooseberry Point, and 1¼ miles from the cape, and as a breakwater on the new site, being more exposed, would involve a larger expenditure than if built on the original site, on December 19, 1910, a full report with plan for work on the new site, estimated to cost $12,000, was submitted to the department, but up to February 15, 1911, nothing further was done in the matter.

CARIBOU ISLAND.

Caribou Island, Pictou county, is on the Northumberland Strait, 5 miles to the westward of the entrance to Pictou Harbour.

A causeway of brush and stone, 1,300 feet in length, between the western extremity of the island and the mainland, on flats dry at extreme low water, commenced in 1890-1, was, after the completion of the works undertaken in 1904-5, up to the level of about one foot above extreme high water or seven feet above extreme low water, and had a talus of quarried stone on the seaward side, sloping one to one from high water.

The work was damaged and repaired from time to time between 1904-5 and 1908-9. At the beginning of the fiscal year 1909-10, it was in the following condition: the raising of the causeway and talus to a proposed height of three feet above extreme high water was nearly completed over a distance of 454 feet from the mainland; over a further distance of 576 feet (454 to 1,030 feet from the mainland) it was raised to an average height of about 1½ feet above extreme high water, and the piles were driven in a proposed pile and brush work 555 feet in length, in bents 5 feet apart, centre to centre, with 3 piles in each bent, to protect the middle third of the causeway.

Of the $1,500 appropriated for 1909-10, $1,206.86 was expended in completing the pile and brush work including the replacing of 99 piles broken during a severe storm in January, 1909.

During the fiscal year 1910-11, the sum of $2,000 was expended in repairing the pile and brush work and in raising the causeway which had settled to about 9 inches below high water, to 9 inches above high water.

Work was in progress July 1st to 20th and October 17th to 26th.

Total expenditure to March 31, 1911, $14,982.33.

CHAPEL COVE.

Chapel Cove, Richmond county, is situated on the southern or Atlantic shore of the island of Cape Breton, between the southern entrance to the St. Peter's canal and Michand Point, being six miles southeast from the former and 4½ miles northwest from the latter, and forms the western end of the settlement of L'Ardoise.

Plan and specification for the construction of an isolated breakwater to protect the anchorage for fishing boats were prepared and forwarded to the department on September 19, 1910, and on February 15, 1911, a contract was entered into with W. J. Landry for its construction in the sum of $11,148.

The proposed breakwater is 300 feet in length and 20 feet in width on top, with sides and ends battering 1 in 8, and is to consist of round timber crib-work, creosoted to half tide, solidly filled with ballast and close-sheathed on the seaward face and ends.

CHEBOGUE.

Chebogue Harbour, Yarmouth county, is situated about 7 miles south of the town of Yarmouth. Near its mouth and surrounded by Fox Island, Veal Island, Jacko Island and Shortliff Point, is a small but well protected anchorage, or roadstead, which affords shelter to a considerable number of fishing vessels and other small

craft engaged in fishing and general trade. The anchorage is partly protected on the south by Fox Island, but its western portion, which is mostly dry at low water and much used at or near high tide by boats plying between Chebogue point and other ports, is guarded by a gravel bar or beach, 800 feet long, about 20 feet wide, from high water to high water, and 4 to 5 feet above H.W.O.S.T.

To preserve the beach, and the anchorage north of it, the department, in 1900-1, at a cost of $1,798.34, built 360 feet in length of beach protection work. The crib-work is 8½ feet high, 8 feet wide on top, plumb on the beach or shoreward side, battering 1 in 4 on the back or harbour side, and substantially built of round logs, well bolted, fendered, filled with ballast and covered with 3 inch plank.

It was completed in 1903-4. (For details see annual report 1905-6).

In 1907-8, the sum of $7,186 was expended in fastening a length of 160 feet of the floor of the work, which had been partially lifted by ice the last winter.

In 1910-11, the sum of $9 was expended in petty and emergent repairs to the floor of the beach protection work.

CHEGGOGIN POINT.

Cheggogin Point, Yarmouth county, is a small farming and fishing settlement, situated on the east coast of the mouth of the Bay of Fundy, about 4 miles northwest from Yarmouth.

In 1908-9, the department expended the sum of $998.76 in constructing a small breakwater for the protection of the fishing fleet. The work consists of a piece of substantial crib-work, 70 feet long, 20 feet wide and from 5 to 12 feet high.

Spring tides rise about 12 feet.

In 1910-11, the sum of $1,974.97 was expended in constructing an extension to the breakwater, built in 1908-9. The new block is 90 feet long, 20 feet wide and from 12 to 18 feet high, of round log crib-work, filled with ballast.

Work was begun on the first of September and finished on the 17th of November, 1910.

CHIPMAN BROOK.

The harbour of Chipman Brook, Kings county, is formed by the mouth of a small stream which issues on the south shore of the Bay of Fundy, half way between Halls Harbour and Canada Creek, or about 3 miles from each place.

About the year 1857, a public wharf, 175 feet long and 25 feet wide, was built at the joint expense of the inhabitants and the provincial government. Since the Public Works Department has had charge and control of this work, numerous expenditures have been made in repairs and renewals.

In 1899-1900, the sum of $1,000, and in 1900-1, a further sum of $1,485.47 was expended in extensive renewals and repairs. The work done under these two expenditures consists of the reflooring of the whole of the work, the fendering and close-sheathing of the seaward face and outer end, and the construction of a break on the seaward side; also, the building of a triangular-shaped piece of work to fill the gap on the inner or eastern side, 104 feet long, 15 feet wide on one end, tapering to nothing on the other, and from 11 to 14 feet high. This new piece has been solidly constructed of round log crib-work, well fendered and filled solid with stone ballast.

In 1910-11, the sum of $999.31 was expended in renewing the inner or shoreward portion of the breakwater, a length of about 150 feet, a width of from 10 to 15 feet and for a height of 7 to 20 feet, taken down to the bottom and rebuilt.

Work was begun on the 18th of August and finished the 31st of October, 1910.

Spring tides rise about 38 feet.

Total expenditure is $11,152.80.

This work was transferred to control of Department of Marine and Fisheries on June 12, 1888.

CHURCH POINT.

Church Point, Digby county, is situated on the southeast side of St. Mary's Bay, 9 miles southwest of Weymouth. It has a population of 200 people, engaged in farming and fishing. The works, which consist of a wharf, a retaining wall and a breakwater, appear to have been built between the years 1855 and 1866, at the joint expense of the inhabitants and the provincial government.

In 1875-6, the department expended the sum of $2,000, the inhabitants contributing an equal amount, in repairing the northern face, and in building an 'L' 72 feet long by 20 feet wide, at right angles to it, with the object of preventing gravel from working around the outer end. The movement of the gravel, which is from south to north, has always been more or less of a difficulty and a detriment to the port.

Since 1890-1, the department has expended various sums in repairing, improving, &c., the work, of which full details are contained in the annual report for 1909-10.

In 1910-11, the sum of $600 was expended in building a small landing wharf for fishing boats, inside the tidal pond. The wharf, which is built of substantial cribwork, is 50 feet long, 12 feet wide and 13 feet high, filled with ballast and floored.

The work was done in the months of November and December, 1910.

COCKERWIT PASS.

This Pass was first known in our records as Lower Woods Harbour; and in the fiscal year 1908-9, the sum of $3,000 was expended with good results. The quantity of rocks removed at the time was 572 tons, making the cost per ton about $5.25. During the past year, the amount of $2,999.60 was expended in completing this work. About 450 tons of stone were removed which made the cost per ton about $6.66. The stone removed was taken for the breakwater which was built at Falls Point, Lower Woods Harbour.

This pass or channel is used by vessels coasting along the southern shore of Nova Scotia, and is a very important thoroughfare for the class of navigation that is found along that portion of the coast. By means of the work which has been done there, the depth of water has been increased from 7½ feet to 12 feet at L.W.O.S.T., which is sufficient for the class of navigation which would use it; so that it is navigable now at all times of tide. The work was commenced on August 11, and completed on November 1, 1910.

Tide rises here, spring 12 feet, neap 8½.

COW BAY (PORT MORIEN.)

Cow Bay (Port Morien) Cape Breton county, (South), is on the east coast of Cape Breton island, about 18 miles to the eastward of the entrance to Sydney harbour.

A breakwater, built by the owners of the Gowrie coal mine on the north side of the bay, came under the charge of the Department in 1873. It originally extended 1,374 feet to 17 feet at low, or to 23 feet at high water, and was about 44 feet in width. The area of the basin inclosed between it and the shipping pier of the Gowrie mines, now the property of the Dominion Coal Company, was 17 acres, 10 acres of which had a depth of from 9 to 17 feet at low water.

The breakwater was seriously damaged during the great gale of August 24, 1873. Extensive repairs and improvements were made nearly every year up to 1895 when it consisted of 220 feet of old work protected on the seaward side by a beach of shingle and boulders; 361 feet of old work, 44 feet in width, with new inner face work and a "break" on the seaward side built over the remains of the old work, and 793 feet of inner work with counterforts and connecting outer face works. The inner and outer face works were from 30 to 20 feet apart; they were connected by tie walls, and the spaces were filled with earth and stone ballast.

In 1895-96, 260 feet of the breakwater (1,121 feet from the shore end outward) was carried away down to from 2 to 6½ feet below low water; the outer face works from 1,121 feet from the shore end inward were badly damaged, and ballast was washed over the works and deposited in the dock along the inner face from 581 feet to 1,121 feet from the shore end.

Large expenditures were made every year from 1896-7 up to 1908-9, in repairing and strengthening the breakwater from 1,121 feet from the shore end inward. The outer works were reconstructed and strengthened by filling the face-chambers with concrete and by close-piling; the stringers and covering of the inner work from 581 feet to 1,114 feet from the shore end were renewed, and a portion of the inner face-work, 359 feet in length, (187 to 537 feet from the shore end) was widened and reconstructed. The placing of large concrete blocks against the seaward face of the breakwater was undertaken in 1906-7 and continued in 1907-8, 1908-9 and 1909-10.

During the fiscal year 1910-11, $12,731 of the sum of $17,500, (the amount appropriated for expenditure in 1910-11) was expended in replacing eight concrete protection blocks on the seaward face, built during the year 1909, and undermined by a very heavy storm on November 30, 1909, and in continuing the construction of protection blocks on the seaward face, 91 feet further out towards the end of the work; these blocks vary from 13½ to 17 feet in depth, 9½ to 18 feet in length, 13 to 15 feet in bottom width and 4 feet in width on top, the bottom having been prepared by a diver; sixty-five feet of concrete blocks, 10 feet deep, 12 feet bottom width, 6 feet top width and their top face on a level with top of breakwater, were placed along the shore at the inner seaward angle of the work to keep the sea from cutting through the approach to the work; one hundred and ninety feet at the outer end of the timber brake, damaged in November 1909, was renewed, and three new mooring posts put in. On the harbour side at the outer end of the work, or that part of work inside of the timber brake, used as a wharf, a strip of 130 feet long and 21 feet wide had one tier of round timber, stringers, covering and cap-timbers renewed, and at the outer face of this strip a concrete block of same width, 12 feet deep, 10 feet bottom width and 3 feet top width, was constructed; new flooring and stringers were placed on a strip 85 feet in length and 23 feet in width on the eastern side of work beginning at the outer or head block and extending shore-wards, also stringers and flooring were renewed on one quarter of head block; patching of the covering where needed throughout the remainder of work, and patching of the concrete covering in the centre part of the work.

Work was commenced July 4, and suspended January 21.

Total expenditure to January 31 including $25,000 for purchase of breakwater, $327,093.38.

CREIGNISH.

Creignish, Inverness county, is a farming and fishing district on St. George's bay. Its southern extremity is 3 miles from the Strait of Canso. Connection is made with Port Hood, the shiretown of the county, to the north, and Port Hawkesbury and the Intercolonial Railway to the south, by the railway of the Inverness Railway and Coal Company.

During the fiscal year 1910-11, the sum of $1,135.62 was expended in procuring all the materials, with the exception of covering, required for the construction of a landing wharf 220 feet long and 20 feet wide, close-sheathed on the seaward face and outer end. Depth at outer end at extreme low water 6 feet.

Spring tides rise 4 feet.

CRIBBIN'S POINT.

Cribbin's Point, Antigonish county, is on the west side of St. George's Bay, 8 miles to the southward of Cape George, and 5 miles to the northward of the entrance to Antigonish harbour.

The wharf, constructed (with the exception of a block at the outer end, 20 feet in line of work by 48 feet), in 1892-3, is 320 feet in length and has an approach partly in embankment with stone retaining wall and partly in clay cutting 195 feet in length. It is 20 feet in width for a distance of 120 feet from the inner end, 30 feet in width for a further distance of 180 feet or to the original outer end, and 48 feet in width over the outer 20 feet. The inner 50 feet is of stone with stone retaining walls; the adjoining 250 feet of native timber crib-work, close-faced and fully ballasted, and the outer block, 20 feet in line of work by 48 feet (completed in 1901-2) of round timber laid open-faced with creosoted sub-structure, fully ballasted and protected on all exposed faces by close-sheathing. The seaward side of the wharf, from within 50 feet of the inner end to the outer block, is protected by close-sheathing and by a talus of quarried stone sloping about 3 to 1 from 2 feet above low water, and has a timber break, 4 feet in height, extending from within 50 feet of the inner end to within 20 feet of the outer end to prevent sand from being carried over the work and into the dock.

The depth at extreme low water at the outer end of the wharf, is 11 feet. Spring tide rises 4 feet.

During 1909-10, the sum of $1,446.41 was expended, $1,390.69 in procuring and landing the creosoted timber, and $55.72 in repiling the native timber procured last year for reconstructing, from above extreme low water, part of the old work; the new work to extend 70 feet from within 10 feet of the original outer end inward on the seaward side, and 60 feet from within 20 feet of the original outer end inward on the inner side.

Out of the amount voted for 1910-11, the sum of $1,491.91 was expended in reconstructing the outer end of the old work for a distance of 50 feet from the outer end, as follows:— the old cribwork was removed down to low water, creosoted timber piles were driven through the old native timber crib-work bottom, and new crib-work, creosoted at half tide, was constructed on the pile foundation. As the amount voted proved insufficient to complete the work, and it was absolutely necessary that it should be done before winter, to insure its safety, on November 9, 1910, instructions were received to expend a further sum of $350 for the purpose, and of this amount, up to the end of the fiscal year, the sum of $325.01 was expended in securing the work.

Total expenditure on this work, up to March 31, 1911, is $31,322.93

The work done in 1910-11 was commenced on July 10, and continued to July 21. It was resumed on August 6, and continued until October 24, when it was completed.

CROFT'S COVE.

During the fiscal year 1910-11, the sum of $891.53 was expended in the construction of a boat landing at a point known as Croft's Cove, near Crescent Beach, Petite Rivière, the purpose being to afford a landing place for a large number of people living on La Have islands and others visiting Crescent Beach, a popular summer resort.

The work consists of the construction of 125 feet in length of pile trestle, 6 feet wide, with a T at the outer end 15 feet by 30 feet, and the removal of about 150 cubic yards of mud.

Work was begun on August 13, suspended on August 29, 1910; it is still incomplete and has been seriously damaged by ice.

DAVID'S COVE.

David's Cove, Digby county, is a slight indentation in the general coast line of St. Mary's Bay, half a mile north of Salmon River. The whole district is thickly settled with a thrifty and industrious population, dependent for their living on fishing and farming.

In 1908-9, to protect the fishing fleet, the department expended the sum of $2,497.90 in constructing a breakwater. The work, which is substantially built of crib-work, is 110 feet long, 25 feet wide and from 6 to 14 feet high.

Spring tides rise about 17 feet.

In 1910-11, the sum of $4,017.73 was expended in building an extension to the breakwater, built in 1908-9. The new block is 90 feet long, 25 feet wide on top and from 14 to 20 feet high, substantially built of round log crib-work, sheathed on the seaward face with 6-inch timber and provided with a break 5 feet high. A small block of crib-work, 10 feet square and 8 feet high, was also built in the inner angle, at the shore end of the work to check the undermining by the waves. The expenditure on this was $278.92.

Works was begun on the first of July and finished on the 26th of December, 1910.

DEEP BROOK.

Deep Brook, Annapolis county, is the name of a thickly populated, agricultural district, about 6 miles below Annapolis on the south shore of the Annapolis basin.

In 1908-9, the sum of $1,193.73 was expended in the purchase of materials for the construction of a public wharf of pilework, for the convenience of local trade.

In 1910-11, the sum of $1,265.22 was expended in the construction of a pile wharf, for which the timber had been purchased in 1908-9. The wharf is 135 feet long, 25 feet wide, with an ell on the outer end, giving a face length of 52½ feet. The face of the wharf is from 16 to 18 feet high, giving a depth of water at high tide of about 14 feet. Spring tides rise 26 feet. A convenient freight shed, 27 feet long and 20 feet wide was also built in the angle of the ell.

Work was begun on the 22nd of April and finished on the 18th of June, 1910.

DELAP COVE.

Delap Cove, Annapolis county, is situated on the south shore of the Bay of Fundy, 12 miles to the eastward of Digby Gut. The breakwater is constructed on the eastern side of the mouth of a small tidal pond, which affords safe shelter for fishing boats, and a convenient place for keeping schooners and other small craft during the winter. It affords a good landing place for coasting vessels, and good shelter from easterly storms. The shore, on the opposite side of the stream, protects the breakwater and the pond from westerly storms.

Spring tides arise about 28 feet

The breakwater, which is now 185 feet long, 25 to 28 feet wide, and from 12 to 21 feet high, was built by the department in 1878-9. Since its construction, it has had frequent repairs and renewals, of which full particulars are given in the departmental report for 1909-1910.

In 1910-11, the sum of $910.41 was expended in taking down and rebuilding a length of 50 feet of the shore end of the breakwater, which was in a dilapidated condition.

Work was begun on the 3rd of October and finished on the 30th of November, 1910.

DELOREY'S BEACH.

Monk's Head, Antigonish county, is a headland on the south-western shore of St. George's bay about midway between the entrances to Antigonish and Pomquet harbours. A beach, some 2½ miles in length, extends in a south-easterly direction from the head and encloses the western portion of Pomquet harbour. The western end of the beach where it joins the highland is called locally "Delorey's Beach."

On June 6, 1910, the sum of $6,500 was authorized to be expended by contract to build a breakwater 280 feet in length, 20 feet in width and to have 4½ feet of water at

its outer end at low water springs. Spring tides rise 4½ feet. The substructure to be built of creosoted timber and the superstructure of native timber; the seaward and outer faces to be close-sheathed with 4 inch hardwood and the whole work covered with 4 inch spruce or hemlock plank. The contract for this work was awarded to Dougal and Alex. McIsaac of Antigonish, Antigonish Co., N.S., for the sum of $6,255.10, on January 23, 1911.

Up to March 31, no further action had been taken.

DIGBY.

Digby, Digby county, the shire-town of the county, with a population of some 1,500 people, is beautifully situated on the south-western end of Annapolis Basin. It is an important station on the Dominion Atlantic Railway, 67 miles north of Yarmouth, 150 miles from Halifax and 20 miles from Annapolis. It is also the port of call for the daily steamer of the Dominion Atlantic Railway plying between Digby and St. John. The harbour is open at all seasons and well protected from nearly all quarters; storms, however, from the north and northeast, drive a heavy sea against the pier, and if, at such times, there be much drift ice in the basin, the structure is likely to suffer damage.

The pier, nearly 900 feet long, was originally built by the Nova Scotia Government some years before Confederation.

Full particulars of the work, with details of expenditures in repairs and renewals, will be found in the Departmental reports for 1906-07 and 1909-10.

In 1908-10, in order to provide a berth for the daily steamer during the reconstruction of the main pier, as well as a second berth, the need of which had often been felt, the Department, at a total cost of $26,888.10 (exclusive of inspection and of any payment made or to be made to the Contractor on acount of their claim for damages for delay) built a spur pier of creosoted piles and Georgia pine, projecting at an angle of 40° from the middle of the length of the south side of the main pier. It is 351 feet long on the north side and 431 on the south side, 50 feet wide and provided with an incline slip on the north side 25 feet wide and 300 feet long, descending on an incline of one in nine, to about 4 feet above L.W.O.S.T.

As the outer or northern face of the spur pier was about on low water mark, it was necessary to dredge the whole length of the face and for about 100 feet beyond it, to a depth of 16 feet below L.W.O.S.T.

In 1910-11, the sum of $27,394.18 was expended in repairs and renewals to the pier. The whole of the incline slip was rebuilt. The outer 40 foot block was taken down to low water mark and partially rebuilt in creosoted timber. A new block, 12 feet wide, was built of creosoted timber and floated into position at the end of the pier. From 6 feet above low water, it will be continued to the top in native timber.

Work was begun April 1, 1910, and carried on uninterruptedly until March 31, 1911.

Dredging.

A contract, No. 7531, was signed on the 20th of June, 1910, by Messrs. Beazley Bros. of Halifax, for the removal of about 50,000 cubic yards of Class "C" at 40 cents per yard, in the steamer approach to the Government pier at Digby. The work was begun on the 14th of June, 1910, and stopped on the 14th of September, 1910, and a total quantity of 51,188 cubic yards was removed.

Racquette.—In accordance with authority of the 4th of November, 1910, a contract was awarded to Gilbert Ellis of Digby, for the excavation and removal, by hand, of about 4,000 cubic yards of sand and gravel, in the approach to the Maritime Fish Company's wharfs in the Racquette at Digby, at 60 cents per yard. Work was begun

on the 5th of December, 1910, and stopped on the 31st of March, 1911, a total quantity of 1,347 cubic yards being removed. The material was shovelled by hand on to a decked scow, towed by gasoline boat to deep water and unloaded by hand.

DOVER.

Dover, Guysboro county, is situated on the Atlantic shore of Nova Scotia about 4 miles west from Canso.

During the fiscal year 1910-11, tenders were invited for the construction of a block and span wharf 210 feet in length and 20 feet in width with an "L" at the outer end 40 by 20 feet and a depth at the outer end of 9 feet at L.W.S. Spring tides rise 6 feet. The work is to be constructed of round native timber crib-work, close-sheathed with 4 inch hardwood plank around the "L" and covered from end to end with 3 inch spruce covering.

On September 30, 1910, a contract for the construction of the wharf was entered into by the Department with A. W. Gerrior and Kinsman Sweet, Antigonish, N.S., for the sum of $3,836.

Up to March 31st, 1911, no further action had been taken.

DUBLIN SHORE.

Dublin Shore, Lunenburg county, is situated about 2 miles to the eastward of the entrance to La Have River, 14 miles south of the town of Lunenburg. It is a farming and fishing district of about two hundred people.

During the fiscal year 1910, the sum of $9,999.96 was expended in the construction of a breakwater wharf. The completed work is 320 feet in total length, the shoreward 250 feet being 20 feet wide and the outer 70 feet being 40 feet wide, built of stone-filled cribwork with a break on the east side 3½ feet high. The work varies in height from 5 feet at the shoreward end to about 22 feet at the outer end where there is a depth of 10 feet of water at L.W.O.S.T.

The work was done under contract with Thomas H. Morrison of Descousse, N.S.

Work begun September 15th, completed December 22nd, 1910.

EAST BAY.

East Bay, Cape Breton county, at the head of East Bay, an arm of the Bras d'Or lakes, is 11 miles from the city of Sydney.

During the fiscal year 1910-11, the sum of $2,408.75 was expended in procuring creosoted timber and other materials required in the reconstruction of the public wharf on the south side and near the head of the bay.

The materials procured for reconstructing the wharf on the south side are to be used in constructing a new wharf on the north side of the bay.

Expenditure up to 1903-4	$4,070 07
Expenditure in 1910-11	2,408 75
Total expenditure	$6,478 82

EAST BERLIN.

East Berlin is a small fishing settlement about 11 miles north-east of Liverpool town, and has a population of about 350. During the year 1902-03, the sum of $2,000 was expended on the construction of a breakwater, and in the succeding fiscal year, a further sum of $700 was expended upon the same. In 1906, the sum of $1,500 was expended in extending this work, and in commencing a wharf at the end of it. During the year, 1909-10, another sum of $600 was expended in repairing the end of the wharf, which has been swept away by a heavy storm. During the past fiscal year, the amount of $1,999.65 was expended in further extending the wharf.

On the extreme eastern point of the village, and partially protecting a small harbour, is a shingle beach about 700 feet in length, which is bare at about half tide. The centre of this beach laterally was taken as the site of this work, and upon it a cribwork beach protection or small breakwater was constructed. This work was 600 feet in length, 10 feet in width on top, and has an average height of 9 feet, being constructed of open-faced, round logs, stone-filled cribwork. This protection served its purpose, but the little harbour on the outside required further protection before it could become an adequate shelter for the fishing boats, with the result that, in 1906, the wharf was constructed, which was 140 feet in length, 14 feet in width on top, and had a height of 15 feet at the outside end.

The work constructed this year, consists of an extension 130 feet in length, making the work now 270 feet long, 14 feet wide and 18 feet high at its outside end. This work is also constructed of round log, stone-filled cribwork, thoroughly ballasted, and is covered with two inch plank. It is well fendered and firmly fastened, and in every way satisfactory.

This work was commenced on the 19th of September and was completed on the 15th of November, 1910

Tides rise here, 7 feet spring, and 5 feet neap.

EAST CHEZZETCOOK.

East Chezzetcook, Halifax county, is a deep inlet about 20 miles to the east of Halifax harbour. The inlet is surrounded by a population of about 300 or 400, engaged in fishing and farming. In 1904-5, the sum of $3,993.26 was expended in the construction of a detached breakwater, for the purpose of forming a shelter for fishing boats and other craft. The work is 420 feet long, 14 feet wide, and from 6 to 8 feet high, substantially built of cribwork, and resting on a sub-structure of brush and stone, 20 feet wide and two feet thick.

During the fiscal year 1905-6, a further sum of $4,000 was expended in completing this work. The completed work is 846 feet long, 8 to 16 feet high and 16 feet wide, the cribwork resting on mattrasses of brush and stone.

During the fiscal year 1910-11, the sum of $1,128.33 was expended in the purchase of timber for the construction of an additional detached breakwater to be completed under the 1911-12 appropriation.

EASTERN PASSAGE.

Eastern Passage, Halifax county, is an important fishing village of some 300 or 400 people, situated on the eastern side of Halifax harbour, 5 miles below the city. A small brook which empties into the cove, near this place, used to keep the channel open for boats, but of late years the beach which protected the cove has been gradually moving shoreward, until protection work became indispensable.

In 1908-09, the sum of $4,979.61 was expended in constructing a breakwater for the further protection of the harbour. The work is 350 feet long, of which 200 is 10 feet wide and 150 is 15 feet wide. The work is from 10 to 15 feet high, substantially built of round log cribwork. Some 1,000 feet in length of brush fence was also constructed to check the driving of the sand.

During the fiscal year 1910-11, the sum of $584.73 was expended in completing the outer end of the breakwater which was left in an unfinished condition in the year 1908-09.

Work was begun March 1st, completed March 25th.

During the fiscal year the sum of $2,758.77 was expended in removing 9,961 cubic feet of sand to form a channel for the fishing boats entering and leaving the harbour. Work was done under contract with Messrs. Beazley Bros., of Halifax.

Work was begun December 28th, 1910, suspended February 21st, 1911. The dredging is not yet completed.

EAST JEDDORE.

East Jeddore, Halifax county, is a settlement of about 600 people, scattered along the eastern side of Jeddore harbour about 30 miles east of Halifax and 10 miles west of Ship Harbour. The inhabitants are chiefly engaged in fishing; the fleet comprising ten schooners and a number of small boats. The harbour is an excellent one, with good shelter and easy approach, the channel being from 20 to 40 feet deep and from 800 to 1,000 feet wide.

In the fiscal year ending June 30, 1904, the department expended the sum of $1,403.88 in constructing a pile-wharf 100 feet long, 25 feet wide with an ell at the outer end, giving a face length of 40 feet. The height of the work along the outer face is 20 feet, giving a depth of water at L.W.O.S.T. of about 10 feet. In the year 1904-5, the sum of $928.07 was expended in repairs to the work which had been seriously damaged by exceptional ice. In the year 1907-8, the sum of $827.70 was expended in constructing a substantial block of cribwork, 40 feet long, 20 feet wide and from 13 to 19 feet high, under the north corner of the wharf to prevent further damage by ice. In 1908-9, a second block of cribwork was built for the protection of the wharf, 22 feet long, 20 feet wide and 12 to 15 feet high. A small freight shed, 22 by 15 feet, was also constructed for the convenience of shippers.

During the fiscal year 1910-11, the sum of $47.05 was expended in making repairs to the fenders, piling and guard timbers of the wharf.

Work begun December 16th, 1910, completed December 23rd, 1910.

EAST PORT MEDWAY.

East Port Medway is a settlement of about 300 people, situated about 4 miles north east of Port Medway proper, on the east side of Port Medway Harbour. About fifty years ago, the Provincial Government built a wharf which was used as a ferry landing, as well as to accommodate the other requirements of the locality. In the year 1900, this wharf was reconstructed by this department at a cost of $1,670.

It now consists of a rock bank 76 feet in length, and 4 cribs, each 20 feet long, separated from each other by spans 18 feet in length. The rock bank has a width of 25 feet on top, and a height of 10 feet at the outer end, whilst the cribwork is all 22 feet wide, and has a height at the outside end of about 19 feet.

The sum of $85.55 was expended effecting slight repairs, such as replacing a few fenders, fixing some of the guard rails, &c. Work was commenced on the 15th of September and completed on the 22nd of September, 1910.

Tides rise here, spring 7 feet; neap 5 feet.

ECUM SECUM.

Ecum Secum Inlet, Guysboro county, is on the southern or Atlantic coast of Nova Scotia, 9 miles to the westward of Liscomb harbour, and near the boundary line between the counties of Guysboro and Halifax.

The wharf, constructed in 1901-2, is 160 feet in length and 22 feet in width, on top, with an "L" on the eastern side of the outer end, 22 by 22 feet. It is a continuous structure of round timber, laid open-faced, fully ballasted and close-sheathed at the outer end and on the seaward side for a distance of 60 feet from the outer end and on the eastern face of the 'L'. The depth at the outer end, at extreme low water, is 10¼ feet. Spring tides rise 6 feet.

During the fiscal year 1910-11, the sum of $999.51 was expended in close-sheathing, with hardwood on both sides of the wharf over a distance of about 90 feet from the outer end inwards, and in the construction of a freight shed 18 by 14 feet with 8 feet posts.

Work was in progress November 1st to 29th, and October 28th to 31st.

Total expenditure to March 31st, 1911, $5,165.97.

EEL BROOK.

Eel Brook, Yarmouth county, is a thrifty fishing and farming settlement of about 600 people, situated on the east side of the many islanded bay, forming the mouth or estuary of the Tusket river. It is 12 miles east of Yarmouth.

In 1910-11, the sum of $649.81 was expended in deepening, widening and protecting the little brook, about 500 feet long, connecting Eel Lake with the head of the harbour. To protect the sides of the brook, cribwork of a total length of 547 feet was built, an average height of 3 feet and a width of 7 feet. The bottom of the brook was also cleared of boulders, so that boats could pass in and out.

Work was begun on the 2nd of August and finished the 31st of August, 1910.

ENGLISHTOWN.

Englishtown, Victoria county, is situated on the southern shore of, and immediately within the entrance of St. Ann's harbour, at the head of St. Ann's Bay, on the north-east coast of Cape Breton island.

The wharf was constructed by the department during 1900-1, is 235 feet in length, and extends to 12 feet at low water. It is a block and span structure, consisting of an approach, 27½ feet in length and 20 feet in width; of five crib-work blocks 20 by 20 feet, and of an outer block, 20 by 40 feet, with openings between the blocks, 17½ feet wide. The blocks are built of round timber, laid open-faced, with creosoted timber substructure, fully ballasted and fendered, and close-sheathed on the western faces, the outer end and on the eastern face of the outer block.

The amount of $175, authorized for 1910-11, was intended for the construction of a freight shed, 12 by 20 feet, but as it was considered that a shed 10 by 18 feet would be sufficiently large to accommodate the traffic, and would take up less room at the outer end of the wharf, the smaller shed was constructed, and of the amount authorized, the sum of $91.10 was expended upon its construction.

The work on the shed was commenced on October 18th and was completed on October 31st, 1910.

FALLS POINT.

Falls Point is situated at Woods Harbour, about a mile above the railway station, which is at the lower end of the settlement. In former years, ice forming in the harbour, moving out in time of storm, would very often carry with it several of the boats belonging to the fishermen in this place. In order to provide shelter, a breakwater was begun during the past fiscal year at Falls Point, and the sum of $3,882.04 was expended thereon. The total cost of the breakwater is estimated to be $7,000, and an additional $3,000 has been granted for the present fiscal year.

During the past fiscal year, a rock bank approach was constructed, 112 feet in length, 24 feet in width on top, with a height of 22 feet at the outer end. The work was commenced on July 9th and completed on October 31st, 1910.

Spring tides rise here 11 feet; neap 8 feet.

FINLAY POINT.

Finlay Point, Inverness county, is on the west coast of Cape Breton island about 3 miles north of the entrance to Mabou Harbour.

During 1903-4-5, a wharf, 15 feet wide and extending 148 feet to 3 feet at low water, was constructed by the department to serve as a landing place and a shelter for boats.

In 1905-6, the sum of $74.99 was expended in repairing and strengthening the brush and stone approach at the inner end of the crib-work.

During 1907-8, the sum of $300 was expended in repairing and strengthening the work. A crib-work block 25 feet by 18 feet was built adjoining the inner face at the outer end of the crib-work; the crib-work was partly reballasted and some quarried stone was placed on the seaward side of the crib-work and approach.

Total expenditure to March 31st 1911, $3,630.43.

FOX ISLAND.

Fox Island, Halifax county, is situated on the Atlantic coast of Nova Scotia, about 13 miles east of Halifax and is about 900 feet from the mainland. It is only some three or four acres in extent and no point on it is more than 6 feet above H.W.O.S.T. It has no permanent inhabitants but during the summer season it is used by fishermen as a fishing station. In the year 1880, the sea broke through the bar of sand and gravel which had formerly served as a road from the island to the mainland, at low water, and in 1886-7, the department built protection works extending over the whole length of the beach, a distance of 935 feet. In 1892 an extension was built, 252 feet in length, to protect the main part of the island. In 1900-1, the sum of $1,243.63 was expended in rebuilding 410 feet in length with an average width of 12½ feet and a height of 6 feet. In 1907-8, the sum of $999.03 was expended in repairs.

In the year 1910-11, the sum of $1,408.81 was expended in the construction of a small breakwater 100 feet in length, the shoreward 50 feet being 20 feet in width and the outer 50 feet, 25 feet in width. It is 16 feet high at the outer end where there is a depth of 4 feet of water at L.W.O.S.T.

The work is of stone-filled cribwork, sheathed on the seaward side and has a break 4 feet in height. Repairs were also made to the east side of the beach protection work, and an amount of $52.32 was expended in the purchase of timber for the extension of the work to be made under the 1911-12 vote.

The work was begun June 6th, suspended September 29th and repairs were made between the dates of January 11th and the 8th of February, 1911.

GABARUS.

Gabarus Bay, Cape Breton county, on the Atlantic coast of Cape Breton island, is five miles wide at its entrance between White Point and Cape Gabarus.

In 1901-2, a breakwater extending 190 feet to 12½ feet at low water, was constructed at Harbour Point near the head of the bay. The inner section, 70 feet in length, is 16 feet in width, and the outer section, 120 feet in length, is 24 feet in width on top.

In 1905-6, the breakwater was extended 128 feet to 17¾ feet at low water. The extension consists of an inner section 47½ feet in length and 24 feet in width on top and an outer section 80½ feet in length and 30 feet in width on top, of square timber laid close-faced with creosoted substructure fully ballasted and close-sheathed on the seaward face, at the outer end and on the inner face for a distance of 15½ feet from the outer end.

Spring tide rises 5 feet.

During the fiscal year 1910-11, the sum of $10.02 was expended in slight repairs to the inner end of the breakwater, including the replacing of a few pieces of covering and one cap-timber.

The work was performed in one day, August 6th.

Total expenditure to March 31st, 1911, $27,650.54.

GEORGEVILLE.

Georgeville, Antigonish county, is a settlement on the southern shore of Northumberland Strait, 6½ miles southward from Cape George.

During 1902-3, the department, in order to provide shipping and landing facilities and to make a shelter for fishing boats, constructed a wharf 207 feet long and 20 feet wide with an 'L' on the western side of the outer end, 20 by 20 feet, and during 1896-97-98 it was extended by an addition 44 feet long and 40 feet wide with an "L" on the eastern side of the end, 20 by 24 feet.

For the purpose of increasing the protected area for boats, during 1903-4-5-6-7, a further extension 98 feet long and 24 feet wide with an 'L' on the western side of its outer end, 40 feet long and 24 feet wide, was added to the work.

Up to the end of the year 1906-7, the total length of the wharf was 349 feet and the widths were as follows:—Commencing at the inner end (zero) for a distance of 187 feet, 20 feet; from 1+87 to 2+27, 40 feet; from 2+27 to 2+51, 60 feet; from 2+51 to 3+24, 24 feet; and from 3+49, 64 feet, which includes the 'L'.

For a distance of 87 feet from the inner end, the approach is of stone, for a further distance of 164 feet it consists of squared timber crib-work and for the remaining distance of 98 feet, of round timber crib-work, close-sheathed on all outer faces.

During 1909-10, the angle formed by the 'L' on the eastern side of the work and the extension was filled with a triangular block constructed of round timber crib-work filled in solidly with stone and close-sheathed on the outer face.

During the fiscal year 1910-11, the sum of $793.34 was expended in raising the outer 60 feet of the wharf about 2 feet and replacing some sheathing on the triangular block. Depth at outer end of work 8 feet.

Spring tide rises 4½ feet.

Work was in progress July 11th to 18th; September 8th to 30th, and October 12th to 28th.

Total expenditure on this work up to March 31st, 1911, $25,734.95.

GILLIS POINT.

Gillis Point (East), Victoria county, is a small settlement on the western shore of the Little Bras d'Or lake, about 1¼ miles to the northward of Gillis Point proper, and about 6 miles from Iona Station, on the I.C. Ry.

Plan and specification for the construction of a block and span wharf, to be done by day labour, were prepared; a foreman was appointed, and the creosoted timber required was procured.

Out of the amount voted for 1910-11, up to January 31st, 1911, the sum of $2,265.31 was expended.

The proposed wharf will be 142 feet in length and 16 feet in width on top, and will extend to 13 feet at low lake level. It will be a block and span structure; the blocks will be built of round timber, creosoted to high lake level, fully ballasted and fendered, and the faces of the two outer blocks are to be close-sheathed between the fenders.

GRAND ETANG.

Grand Etang, Inverness county, is on the Gulf of St. Lawrence, about midway between the harbours of Margaree and Cheticamp.

The works are 'harbour works' designed to improve the entrance to a large pond and thus make it available for the use and shelter of fishing boats and small vessels, completed in 1894-5, and a 'bridge' across the pond, about 500 feet within the entrance, was constructed in 1895-6 and reconstructed in 1902-3.

The harbour works include a dredged channel between two piers placed 87 feet apart, except at the entrance where the distance between them is 44 feet. Each pier consists of brush and stone work, 135 feet in length; brush and stone embankment, with talus and covering of stone, 130 feet in length; open-faced crib-work 100 feet in length, and a crib-work head 30 feet in line of work by 48 feet, with creosoted substructure, reconstructed in 1908-9. The brush and stone work and about 85 feet of

brush and stone embankment, on each side, are founded on a bottom excavated to one foot above extreme low water, and the remainder of each pier on the natural bottom; the depth at the outer end, at extreme low water, being 4 feet 6 inches. Dredging, between the piers, to 6 feet at extreme low water, was performed in 1898-9.

Spring tides rise 4 feet.

The 'bridge' as reconstructed in 1902-3, is 563 feet in length, including the east and west approaches of brush and stone with crib-work abutments, respectively 94 and 51 feet in length, and 438 feet of creosoted pile-work. It is provided with a handrail on each side, an opening for boats and a draw. The depth, at extreme low water, over the central 200 feet, is about 6 feet, and to firm bottom, through water and soft mud or silt, from 21 to 24 feet.

During the fiscal year 1909-10, the sum of $1,142.97 was expended, $267.39 in repairs to covering of bridge and $875.58 in removing, by means of a diver, stones, (ballast) from the crib-work on each side, and gravel which had shoaled the channel, in places, to 2 feet at extreme low water. The intention was to excavate to the original depth of 6 feet at extreme low water, but the amount authorized was sufficient only to excavate to 4½ feet.

During the fiscal year 1910-11, the sum of $4,927.63 was expended, $267.39 in paying for repairs to bridge covering during 1909-10, and $4,660.24 in further removal of ballast from the channel by means of a diver and in completing, with the exception of a few pieces of sheathing, the reconstruction of 50 feet of crib-work on each side of the channel.

Operations were in progress May 4 to June 30, and Sept. 22 to Oct. 31.

Total expenditure to March 31, 1911. . . . . .

On channel and protection works.		$43,779 31
On bridge construction, 1905-6.	$3,690 20	
On repairs to and reconstruction of bridge. .	6,314 01	10,004 21
		$53,783 52

GRASS COVE.

Grass Cove, Victoria county, is on the western side of the Little Bras d'Or lake, about 2 miles to the northward of Iona, a station on the I. C. Ry. at the western end of the Grand Narrows Railway bridge.

In order to enable the inhabitants at and in the vicinity of Grass Cove to ship pit timber to the coal mines in eastern Cape Breton, during 1908-9, the sum of $982.86 was expended in procuring all the native timber, iron and ballast required for the construction of a public wharf, and during the fiscal year 1909-10, the sum of $2,097.12, was expended for the delivery of the creosoted timber necessary for the substructure of the proposed wharf.

During the year 1910-11, the sum of $1,978.07 was expended in the construction of the wharf, for which the materials were procured during 1908-9, and 1909-10.

The wharf, as completed, is a block and span structure extending to 12 feet at low water, and is to be 164 feet in length and 18 feet wide, with an 'L' on the outer end 18 by 20 feet; the blocks consisting of round timber crib-work with creosoted timber substructure.

The work of construction was commenced on May 25 and continued to July 23. It was resumed on August 21 and continued to August 31, 1910, when it was completed.

Total expenditure on this work to March 31, 1911, is $4,961.76.

GROVE POINT.

Grove or Monday Point, Cape Breton county, is on the southern side of Boularderis island, about 3½ miles south-west from the highway bridge across the entrance to the Little Bras d'Or channel.

The wharf was constructed by the department during 1893-94-95, and consists of a stone embankment, 122 feet long, with gravel covering; of a span 16 feet long, and of a native round timber crib-work block, 22 by 44 feet at its outer end, forming a "T" head.

As the crib-work below the line of low water was completely destroyed by the teredo, and the timber above low water was in a decayed condition, the sum of $3,000 was voted for expenditure during 1910-11, in the construction of a new head; the work to be done by day labour.

Out of the amount voted, up to Feb. 1st., 1911, the sum of $2,143.44 was expended in procuring the creosoted timber required for the substructure of the new head, and in repairs to the approach.

The proposed new head will consist of a crib-work block, 20 by 40 feet, placed outside of the old head, and will be connected with the stone abutment by a pile approach 41 feet long and 16 feet wide, the piles being driven into the old crib-work, The work will extend into 13 feet at low water.

The work on repairs to approach were carried on from August 17th to 20th, from August 29th to 31st, and from September 12th to 30th.

Total expenditure on this work to March 31st is $5,094.23.

GULF SHORE.

Gulf Shore is a scattered settlement, situated about 6 miles from the town of Pugwash, having about 400 people whose chief occupations are farming and fishing. In order to assist the lobster fishermen in the pursuit of their vocation, the department commenced the construction of a breakwater during the fiscal year, 1908-09, upon which the sum of $2,425.25 was expended.

All the materials were procured and the cribs partially constructed, but they were not floated out to position, owing to the lateness of the season and the exposed condition of the foreshore at this place. The ice forms here, sometimes, 14 or 15 feet thick along the entire shore, and it was considered inadvisable to attempt to construct cribs at a time when there is danger of this heavy moving ice destroying the work under construction.

During the next fiscal year, nothing being appropriated for this work, no work was performed, but during the present fiscal year, the sum of $1,198.51 was expended on the completion of this work.

The breakwater itself is of continuous round-log cribwork, well fendered and strongly fastened. It is 120 feet in length, 14 feet in height and 20 feet in width.

The material is extremely good, the stone has been comparatively handy, and the workmanship is of a good, solid, satisfactory nature. This work has cost a little more per cubic foot than most of the breakwaters of similar style which have been built in this county. The work was commenced on the 17th of August, 1910, and completed on March 3, 1911.

Spring tides rise here 6½ feet, neap 4½ to 5 feet.

HALL'S HARBOUR.

Hall's Harbour, Kings county, is situated on the south side of the Bay of Fundy, 65 miles northeast of Digby Gut and 12 miles southwest of Scott's Bay; it is 12 miles northeast of Kentville, the county town of Kings, and headquarters of the Dominion Atlantic Railway.

The harbour, though small, is one of the best at high water between Scott's Bay and Digby Gut. Spring tides rise 39 feet, neaps 33. The village has a population of about 150 people, and some years ago had a considerable shipping trade, which, of late years, has greatly declined.

About the year 1839, the inhabitants, aided by the Provincial Government, built timber retaining walls on each side of the inner harbour, which consists of a landlocked basin, dry at low tide, of about an acre in extent, to permit vessels to lie alongside the public road. About 1844, an addition, seawards to the wall, on the west side, was built, in order to prevent the accumulation of gravel at the mouth of the harbour, and to serve as a breakwater. In 1884, it was repaired by the department at a cost of $750. On November 6, 1884, the outer block was destroyed by a violent gale, the accompanying heavy sea having the effect of depositing a bank of gravel which almost entirely obstructed the mouth of the harbour.

From 1884 to 1910, many expenditures were made in repairs and renewals, of which a full account will be found in the department report for 1909-10.

In 1910-11, the sum of $1,398.19 was expended in constructing a small new breakwater on the east side of the mouth of the little harbour, for the purpose of affording some shelter from east and northeast storms. The work, which is substantially built of round log crib-work, is 80 feet long, 20 feet wide and from 5 to 12 feet high.

Work was begun on the 1st of August and finished on the 3rd of December, 1910.

HAMPTON.

Hampton, Annapolis county, formerly called Chut's Cove, is situated on the southeast coast of the Bay of Fundy, 27 miles northwest of Digby Gut, and 6 miles northwest of Bridgetown, an important station on the Dominion Atlantic Railway. It has a population of about 200 people, engaged in fishing, farming and the export of cordwood and timber.

In 1855-6, a small pier, 165 feet long, was built near the western side of the cove, the Provincial Government contributing $600 to its cost. The site was chosen by commissioners, apparently without professional advice, and was objectionable on many accounts. At a cost of $3,000 in 1879, an addition of 121 feet was made by the Department, and the older portion of the work was strengthened with the hope of remedying some of the defects of the location.

In 1881, on further examination, it was found that the original work had been undermined by the sea and that owing to the direction of the pier, the shingle was fast shoaling the water on the inside. It was therefore decided to rebuild the structure on another site, about half a mile to the eastward, which work was carried on at a cost of $2,300. The new pier, as then completed, was 246 feet long, more substantially built and better situated than the old one, it being located immediately to the westward of a small brook, which serves to keep the schooner berth alongside free from sand.

Between 1889 and 1910, numerous expenditures were made by the department in repairs, renewals and extensions, of which a full account will be found in the annual report 1909-10.

In 1910-11, the sum of $3,044.41 was expended in constructing an extension to the main or west breakwater. The new piece being 55 feet long on the east side, 50 feet long on the west side, from 20 to 25 feet high and 25½ feet wide on top. The appropriation did not suffice to complete the work, owing to the imperative need of making some repairs to the east breakwater, and a further sum of $800 will be required to complete it. The repairs to the east breakwater consisted of the raising and rebuilding of the upper portion of the work to make up for settlement caused by severe storms in the previous winter.

Work was begun on the 4th of April and finished on the 31st of October, 1910.

HUBBARD'S POINT.

Hubbard's Point, Yarmouth county, is situated on the left or east bank of the Tusket river, 2½ miles below the village of Tusket.

For the convenience of local farmers and fishermen in the landing of sea-manure, &c., the Department, in 1907-08, expended the sum of $1,059.90 in building a wharf of dry rubble-stone work. The work is 112 feet long, 30½ feet wide, 3 feet high at the shore end and 12 feet high at the outer end, where, at H.W.O.S.T., there is about eight feet of water.

Spring tides rise about 11 feet.

In 1910-11, the sum of $492.75 was expended in constructing a block of cribwork 31 feet wide, 12 feet long and 14 feet high, on the outer end of the stone wharf, built several years ago. Fenders and guard timbers of the wharf, damaged by ice last winter, were also repaired and a small quantity of ballast replaced.

Work was begun on the 1st and finished on the 31st of October, 1910.

INVERNESS.

Inverness, Inverness county, formerly known as Broad Cove, is an incorporated mining town on the northwestern coast of Cape Breton island, about midway between the harbours of Mabou and Margaree and 60 miles from Port Hastings on the strait of Canso, with which it is connected by rail.

Of the amount appropriated for expenditure in 1908-9, towards harbour works at Inverness, re-opening and protecting a channel into McIsaac's Pond, a small sheet of water with a good depth over a limited area, formerly separated from the Gulf of St. Lawrence by a beach of sand 400 feet in width, and estimated to cost $82,000, the sum of $910.96 was expended in procuring nearly all the material with the exception of creosoted timber, required in the reconstruction with pile, brush and stone work, of 300 feet of old channel protection work, on the eastern side of the entrance.

During the fiscal year 1909-10, $61.87 of the amount appropriated, was expended in taking care of timber delivered in 1908-9, the balance having been reserved to pay the award of the exchequer court for property expropriated, and $681.05 was expended out of appropriation for creosoted timber, in procuring and taking delivery of the creosoted timber required for work undertaken in 1908-9.

During the fiscal year 1910-11, the sum of $9,911.35 was expended in pile, brush and stone work on the eastern side of the channel; the inner 120 feet section is completed with the exception of some brush and stone along the channel face; the next 156 feet section is completed; the next 171 feet section was in the same condition as the first 120 feet section, and the outer 183 feet section has all the creosoted and native piles driven and capped on the channel face with the exception of over a distance of 30 feet.

Work was in progress May 11 to 21; June 1 to September 30, October 17 to 26, and January 23 to March 31.

Total expenditure to March 31, 1911, $11,861.38.

IRISH COVE.

Irish Cove, Cape Breton county, is on the south-eastern shore of the Great Bras d'Or lake, near the entrance into East Bay.

The works are: a wharf, completed in 1892-3, and the diversion of a brook in 1907-8.

The wharf is a block and span structure of native timber, 161 feet in length and 20 feet in width, consisting of a shore abutment 47 feet in length; a central block 20½ feet in length, and an outer block 57 feet in length with an "L" 20 by 20 feet. The depth at the outer end is 12½ feet at low or 13½ feet at high lake level.

A brook, flowing through low meadow land to the shore and thence, in an easterly direction, between the shore and a beach of shingle which had gradually extended to within 270 feet of the wharf, was closed (in 1907-8) by the construction of a crib-work dam 40 feet in length and diverted by a new channel straight through the beach at a point 850 feet to the westward of the wharf.

During the fiscal year 1909-10, the sum of $964.52 was expended; $614.57 in repairs to the wharf, including the renewal of 145 piles of the close-piling of the outer block and of 4,800 feet B.M. of covering, and $349.95 in constructing a work of brush, stone and piles extending inward along the east bank of the brook, 240 feet from the dam, to prevent the brook from cutting through the low meadow land and resuming its former easterly direction.

During 1910-11, the sum of $600.31 was expended in the works:—$416.20 in extending the dam on the eastern side of the brook, a distance of 250 feet, and $184.11 in placing and securing 43 new pieces of close-piling on weak portions of the blocks in the wharf.

The work of construction was carried on between the 14th and 29th of September, and between the 22nd and 30th of December, 1910.

Total expenditure on works at this place, up to March 31, 1911, is $8,523.05.

ISAAC'S HARBOUR.

Isaac's Harbour, Guysboro county, is a small but safe harbour on the southern or Atlantic coast of Nova Scotia, 36 miles to the westward of Cape Canso and 16 miles to the eastward of the entrance to St. Mary's river.

The public wharf, on the west side of the harbour, completed in 1901, extends 295 feet to 12 feet at low water. It consists of a stone abutment, 135 feet in length and a block and span extension, 160 feet in length, including three blocks each 22 by 22 feet, and an outer block, 22 feet in line of work by 48 feet. In 1902-3, a warehouse, 37 by 17 feet, was constructed on the south side and at the inner end of the wharf.

In July 1908, the sum of $21.15 was expended in renewing unsound guard rails and covering.

During the fiscal year 1910-11, the sum of $503.67 was expended in renewing the covering and guard rails of the wharf.

Work was commenced August 20 and completed September 20.

Total expenditure to March 31, 1911, $5,333.93.

JOGGINS.

Joggins Mines is a town of from 1,600 to 2,000 people situated on the shores of the Chignecto Bay, about 15 miles southwest of Amherst. Its chief support is the industry of coal mining, which was formerly conducted by the Canada Coal and Railway Company. The interests of the latter Company has, however, been sold out to the Maritime Power Coal and Railway Company, Limited, which has also mines of considerable magnitude at the village of Chignecto, between which places this Company owns a line of railway.

In 1887, the department constructed a breakwater, which is also used as a wharf. In the fiscal years, 1905-06, 1906-07, a road to this breakwater was constructed through the high bank at the foot of which the breakwater was situated. Since the assumption of the property by the Maritime Power, Coal and Railway Company, Limited, the development of the mines has been of considerable magnitude, so that where formerly 350 to 400 miners were employed, there are now between 700 and 800 men working at this mine; and this company has, or fully intends, to ship considerable coal from this port. In order to do so, however, they require more harbour room. During the last fiscal year, the department has appropriated the sum of $9,000 to construct an extension.

The contract for this extension was executed on the 29th of July, 1910, by Mr. Samuel J. Reid, of Middle Musquodoboit, N.S. The contract price was $8,400. The work was immediately commenced and proceeded with in a business-like manner, so that at the last of the calendar year, the work was practically completed. Weather then delayed it, but on the 17th of February, 1911, the work was completed.

This extension will project at an angle of 30 degrees, to the present breakwater, and will consist of solid, continuous crib-work blocking, so that there will be at its outer end from three to three and a half feet greater depth of water than existed at the former end of the breakwater. This crib blocking is 220 feet in length on the outside, the panels of which are 10 feet apart between centres. The seaward face has a batter of 1 to 4, whilst the inner face has a batter of 1 to 12. The height of the work, at the outside end, is 32 feet, the floor being 6 feet above H.W.O.S.T.

Spring tides rise here 38 feet, neap 32.

JUDIQUE.

Judique (McKay's Point), Inverness county, is on the east side of St. George's Bay, 10 miles south of Port Hood and 16 miles north of the northern entrance to the Strait of Canso.

The breakwater at McKay's Point, commenced in 1898 and completed in 1900, is 725 feet in length and 20 feet in width, with an 'L' 20 by 20 feet at the outer end, of round timber, laid open-faced with creosoted timber substructure, close-fendered around the outer end and 'L', and protected on the seaward side by a talus of stone. The depth at extreme low water, at the outer end, is 6 feet.

Spring tides rise 4½ feet.

During the fiscal year 1908-9, the sum of $1,358.99 was expended in cutting down to low water and reconstructing the outer block, and in placing quarried stone in the talus, on the seaward side over a distance of 100 feet, from the 'L' inwards.

During the fiscal year 1910-11, the sum of $1,226.59 was expended in constructing a road, 1,600 feet long, between the breakwater and the public road.

Work was commenced September 16th and completed October 28th.

Total expenditure to March 31, 1911, $23,715.54.

LAKE AINSLIE.

The proposed work for which the sum of $8,000 was appropriated for expenditure during 1910-11, is at Kenloch, (Loch-ban) Inverness county, at the northern extremity of Lake Ainslie about 4 miles from the town of Inverness.

A plan and specification for the proposed work were forwarded on February 6, 1911. Tenders have not yet been called for.

The work as shown and specified is a channel through a bar 15 feet in width at bottom, 689 feet in length and to a depth of 6 feet at ordinary low lake level, protected on each side by pile and brush protection works.

L'ARDOISE BEACH.

L'Ardoise, Richmond county, is situated on the eastern side of St. Peter's Bay, on the southern shore of Cape Breton island.

L'Ardoise Beach separates Shaw's Lake from Shaw's Cove, and serves as a landing place for fishing boats, as a site for fish-houses and as a place to cure the fish upon.

The beach has been wasting away, for some years, by the action of the sea, and during a heavy gale in November, 1909, the sea cut through the beach and washed a considerable quantity of it away.

In order to prevent further damage to the beach and to preserve its usefulness, the sum of $1,800 was voted for expenditure during 1910-11. Out of the amount voted,

up to March 31, 1911, the sum of $1,789.74 was expended in closing the gap in the beach by a pile, brush and stone dam, 120 feet in length, and in the construction of a crib-work groin, 120 feet long and 10 feet wide; besides, nearly all the materials required for the construction of a second groin 100 feet in length were procured.

Work was commenced on September 9, and continued until October 13; it was resumed on November 1 and finished on November 30, 1910.

L'ARDOISE BREAKWATER.

L'Ardoise, Richmond county, is on the eastern side of St. Peter's bay near its entrance from the Atlantic Ocean and about 9 miles to the eastward of the southern entrance to St. Peter's canal.

The outer 400 feet of the breakwater at Martin's Point, originally isolated but connected with the mainland in 1903-4-5, consisted of a crib-work core, placed over the remains of a former structure, covered with stone sloping on the seaward side and at the outer end 3 to 1 and on the inner side 2 to 1, and having a concrete wall, founded at 4 feet above extreme low water, over the crib-work core on the seaward side and at the outer end 3 feet in width, on top, and 4½ feet in height with the top flush with the surface of the stone covering.

Slight disturbances of the stone covering took place yearly from 1900 up to the winter of 1904-5, when, during a furious gale, large masses of ice were thrown against the structure, destroying the covering stone, cutting several gaps through the concrete wall and covering and destroying the crib-work foundation of the concrete wall in places.

In 1906-7-8-9, a new wall of large stones and concrete, founded 2½ feet above extreme low water, was constructed outside of and close against the concrete wall on the seaward side and at the outer end, with the exception of 27 feet on the seaward side, 9 to 36 feet from the outer end, and the covering stones were replaced.

During the fiscal year 1910-11, the sum of $2,515.49 was expended in completing the stone and concrete wall on the seaward side 9 to 36 feet from the outer end; in replacing the ballast and covering stones on each side of it; in constructing a concrete wall to protect the stone and concrete wall at the outer end and on the seaward side over a distance of 9 feet from the outer end, and in replacing the covering stones of the slope on the seaward side over a distance of 138 feet from the inner end outward and on the inner side over a distance of 168 feet from the outer end inward.

Work was commenced September 19 and completed November 29.

Total expenditure to March 31, 1911, $45,930.41.

LEITCHE'S CREEK.

Leitche's Creek, Cape Breton county, is a settlement at the mouth of a small stream emptying into the head of the north-west arm of Sydney harbour. It is a station on the I.C.Ry., 7 miles from North Sydney and 9 miles from the city of Sydney.

Plan and specification for the construction of a wharf were prepared and forwarded to the Department on September 17, 1910, and on February 17, 1911, a contract was entered into, with Messrs. R. Musgrave and Son, and Bartt Musgrave, of North Sydney, for its construction, in the sum of $5,582.

The work under contract is 324 feet in length and 20 feet wide, extending to 8½ feet at low water, and will be a block and span structure, consisting of a shore abutment and eight blocks, all 20 by 20 feet, with spans connecting them, 18 feet wide. Abutment and blocks are to be built of round timber, laid open-faced, and creosoted to half tide, fully ballasted and fendered, and the three outer faces of the outer block, are to be close-sheathed between the fenders.

LISCOMB.

The harbours of Little Liscomb and Liscomb, Guysboro county, are on the east or Atlantic coast of Nova Scotia 56 miles to the westward of Cape Canso.

A contract was entered into on the 3rd of August, 1910, with Wm. Landry for the reconstruction and extension of the Hemlow wharf at Little Liscomb for $2,200.

The work under contract includes the removal of old block and span work and the construction of block and span work, 52 feet in length, and of a pile extension, 69 feet in length and 20 feet in width, with a pile head 20 feet in line of work by 40 feet.

During the fiscal year 1910-11, the timber required in the construction of the work under contract was delivered, but up to March 31, 1911, work of construction had not been commenced.

LITCHFIELD.

Litchfield, Annapolis county, is a fishing and farming settlement on the south coast of the Bay of Fundy, 14 miles north east of Digby Gut. Within a radius of a mile is a population of about 150 people. A breakwater was begun by the Department in 1904-05, and it was completed and extended in the three following years. Its total length is now 230 feet, width 20 to 25 feet and height 8 to 18 feet. Total expenditure, $6,415.56.

In 1910-11, the sum of $1,202.47 was expended in the purchase of timber for a further extension.

LITTLE ANSE.

Little Anse, Richmond county, is a small boat harbour on the eastern side of Petit de Grat island, which lies to the eastward of Madame island, off the southern coast of Cape Breton island.

The sum of $10,000 was voted for expenditure during 1910-11, towards the construction of a breakwater off Birch Point on the northern side of the entrance to Little Anse, for the protection of the anchorage.

Plan and specification for the construction of the proposed work, were prepared, and submitted to the department, on January 21, 1911, but up to March 31, 1911, tenders for its construction had not been called.

The proposed work is to be 600 feet in length and will extend to 12 feet at low water. It will consist of a stone approach, 80 feet long and 20 feet wide, on top, sloping 1 in 4 at the sides, and of a crib-work extension 520 feet in length, 20 feet wide for a distance of 400 feet, and 24 feet wide, on top, for the remaining distance of 120 feet, with sides and outer end faces battering 1 in 8. The crib-work is to be built of round timber, creosoted to half tide, filled solidly with ballast and its seaward face and outer end are to be close-sheathed.

LITTLE BRAS D'OR.

The Little Bras d'Or channel, Cape Breton county, is a narrow and winding passage on the eastern side of Boularderie Island, connecting St. Andrew's channel, an arm of the Bras d'Or lakes, with the Atlantic, entering the latter on the eastern coast of Cape Breton Island, at a point 5 miles to the northward of the entrance to Sydney harbor.

The passage is about 5 miles in length, and has a width averaging 600 feet and a depth of from 3 to 4 fathoms, excepting at its entrance from the Atlantic, where it is obstructed by a bar, carrying but 7 feet at low water.

During 1910-11, the dredge *Cape Breton* cut a channel 40 feet wide and 2,400 feet in length and to a depth of 20 feet, at low water, through the bar, but owing to stormy weather, in the fall, she was unable to finish the cut to 20 feet of water outside. The distance to be dredged to reach that depth is about 200 feet.

The proposed breakwater was intended to be placed on the eastern side of a channel to a depth of 10 feet at low water, to prevent the sand from filling in, but as the channel has been cut to a depth of 20 feet and extends outward a much greater length than was originally intended, a new survey was required before plan and specification for its construction could be prepared

After many futile attempts to make a survey, one was made between the 27th and 30th of March, and plan and specification for the construction of the proposed breakwater will be submitted as soon as possible.

LITTLE HARBOUR.

Little Harbour, Pictou county, is on the Northumberland Strait about 5 miles east of the entrance to Pictou harbour.

Of the $3,400 appropriated for expenditure in 1907-8, in the construction of a wharf near the head of Little Harbour, the sum of $1,148.52 was expended in procuring about three quarters of the materials required in the construction of a block and span wharf.

In 1908-9, the sum of $2,932.02 was expended in procuring the balance of materials required in constructing a wharf, extending 297 feet to 2 feet at low water, and in placing stone around some of the inner blocks to prevent scour.

During the fiscal year 1910-11, the sum of $796.23 was expended in completing, with the exception of placing the fenders, an extension 20 feet in line of work by 40 feet, forming an 'L' 20 feet in length, and in part repairs to the roadway and approach to the wharf.

Work was in progress August 6 to 24, and September 26 to October 8.

Total expenditure to March 31, 1911, $4,877.77.

LIVERPOOL.

At Liverpool the work of dredging was completed, making the channel across the bar 200 feet in width. This place is probably one of the most difficult dredging propositions in this district. The undertow on the bar is present in an aggravated form for about 250 days during each year. This work also fills up very fast, on account of the amount of sawdust which is continuously being dumped into the river from the lumber mills, which are located at Milton, about 4½ miles from the mouth of the Mersey river, on which point Liverpool is located.

LIVINGSTON'S COVE.

Livingston's Cove, Antigonish county, is situated on the southern shore of Northumberland Strait about 2 miles southwest from Cape George.

For the purpose of affording shelter to the fishing boats of the district and a landing place for steamers and small vessels, a pier, extending to 9 feet at low water, was commenced by the department in 1899 and completed in September, 1903.

The work is 312 feet in length, and is approached by a road, cut through the clay bank, 105 feet in length. The pier is a continuous structure and consists of a shore abutment with stone retaining walls, 30 feet long and 18 feet wide on top; of a crib-work block 80 feet long and 19 feet wide, and of a crib-work extension 202 feet in length and 24 feet in width, with an "L" on the southern side of the outer end, 24 by 24 feet.

The crib-work is constructed with native squared timber, laid with 7 inch openings, is fully ballasted and fendered, and the northern or seaward face, the outer end and the southern face of the "L" were close-sheathed with 6 inch hardwood plank.

Contrary to expectations, it was found that the teredo was injuring the substructure of the work, and in order to prevent serious damage, the outer 20 feet of the seaward face of the work, its outer end, the southern and inner faces of the "L" and the

inside face, for a distance of 120 feet from the "L", were close-piled with creosoted timber piling, and a stone talus composed of large quarried stone and extending from high water mark with a slope of about 3 to 1, was placed along its outer end.

During 1909-10, the sum of $200 was expended in the removal of 1,500 feet B.M. of covering and in placing some 80 cubic yards of stone on the talus.

During the fiscal year 1910-11, the sum of $4,302.07 was expended in repairing the approach to the breakwater and in the purchasing of all the creosoted timber and part of the native timber required in the construction of the proposed extension to the outer end, 24 by 80 feet in line of work, extending to 13 feet at L.W.S. Spring tides rise 4½ feet.

Work was in progress October 15 to 19; November 22 to 30, and December 19 to 22.

Total expenditure on this work to March 31, 1911, is $26,511.52.

LONG ISLAND.

Long Island, Cape Breton county, is situated in the Little Bras d'Or lake about 6½ miles south-west of the town of North Sydney and 2½ miles south-west of George's River Station on the I.C.Ry.

During the fiscal year, the sum of $248.25 was expended in the construction of two ferry wharfs, one on the mainland and one on the island. The works are respectively 43½ and 25 feet in length, 10 feet in width, built of round native timber extending to 6 feet at low lake level; tides rise 15 inches.

Work was commenced on March 3, and completed March 30, 1911.

Total expenditure on this work up to March 31, 1911, is $247.75.

LOWER ARGYLE.

Lower Argyle, Yarmouth county, is a village of about 500 people, engaged in farming and fishing, situated on the east side of Abuptic Harbor. It is a station on the H. & S. W. Ry., 25 miles southeast of Yarmouth.

In 1910-11, the sum of $2,368.48 was expended in constructing a wharf of block-and-span. There are four blocks, each 10 feet long on the centre line of the wharf and one 30 feet long. The spans are 12 feet each. On the outer end the work is 31 feet 8 inches wide and 16½ feet high. At the shore end it is 20 feet 8 inches wide and 8 feet high. The approach to the wharf is a stone embankment, 125 feet long, 21 feet wide and from 2 to 8 feet high.

Spring tides rise 12 feet.

Work was begun on the 9th of July and finished on the 29th of September, 1910.

LOWER WEST PUBNICO.

Lower West Pubnico, Yarmouth county, is a thrifty and thickly populated fishing and farming district, situated on the west side of Pubnico Harbour, from 30 to 35 miles southeast from Yarmouth.

In 1902-03, the sum of $1,000 was expended in rebuilding and converting into a public wharf, an ancient cribwork wharf, situated on the lower or southern end of the district. The outer 120 feet in length of the old work was substantially built in pile-work; it is 25 feet wide and from 8 to 14 feet high. At the outer end there is about 11 feet of water at high water ordinary spring tides.

In 1903-04, the sum of $895.62 was expended in renewing the middle portion of the wharf, of which the reconstruction was begun in 1902-3. The piece of work built was 65 feet long, 30 feet wide and from 9 to 13 feet high. The stone approach from the shore end, a length of about 75 feet, was also raised from 1 to 3 feet and walled up with stone on the south side.

Spring tides rise about 12 feet.

In 1908-09, the sum of $499.97 was expended in digging by hand, a boat channel through the mud flats, which are bare at low water, from the end of the public wharf to the main channel. The excavated channel is 1,000 feet long, 12 feet wide and of an average depth of 2 feet.

In 1910-11, the sum of $1,198.64 was expended in deepening and widening, by hand digging, the channel, through the mud flats, from the end of the public wharf to the main channel. The length of digging was about a quarter of a mile by about 5 feet in width and from one to two feet in depth.

Work was begun on the 5th of July and finished on the 4th of October, 1910.

MABOU HARBOUR.

Mabou Harbour, Inverness county, is on the west side of Cape Breton island, 6 miles northeast from Port Hood.

The entrance was formerly at the southern extremity of a range of hills and by an intricate channel, obstructed by a bar over which there was a depth of only 4 feet at extreme low water.

The opening of the new channel through the sand hills, at their northern extremity, was undertaken in 1872. A pier 835 feet in length, on the southern side of the new channel, was completed in 1876, and the same year the old channel was closed. Expenditures were made nearly every year from 1876 until 1899 in dredging; in repairs to the pier; the construction of brush and stone works on the southern side, and of protection work on the northern side of the channel.

On the completion of work undertaken in 1908-9, the works included:—

On the south side: The remains of a pier, 835 feet in length and 20 feet in width founded in about 12 feet at extreme low water, sloping from about 10 feet below extreme low water, at the face, to 2 feet above extreme low water at the back.

A brush and stone work, of various widths, extending outwards from the outer end of the pier about 1,600 feet, the inner end of which was 8 feet above and the outer end 5 feet below low water.

Brush and stone work at the back of the pier, 800 feet in length, 10 to 12 feet in width, on top, and 8 feet in average height.

Brush and stone work 330 feet in length, from 1 to 5 feet above high water, closing the former entrance.

On the north side, five pile and brush groynes, four of which are from 75 to 85 feet in length, and one 45 feet.

In 1903, the minimum depth, at extreme low water, over the bar, about 600 feet outwards from the head of the pier, was 6 feet 3 inches. In July 1906, the depth over the bar was increased to 16 feet according to report on dredging for 1906-7. This depth had decreased to 13 feet in November, 1907, and to 9 feet in July, 1908.

During the fiscal year 1910-11, the sum of $7,865.50 was expended in raising the brush and stone work, (which extends outward from the outer end of the pier) over a distance of 370 feet from its inner end. The new work consists of a brush and stone core up to a height of high water springs, 12 feet wide on top with sides sloping ½ to 1, and a talus and covering of heavy quarried stone, 9 feet wide at a height of 3½ feet above high water springs, with sides sloping 2 to 1, and top rounded off to a height of 4½ feet above high water springs. Repairs were also made to two of the groynes on the north side of the channel including replacing piles and brush filling.

Operations were in progress August 1, 1910, to January 7, 1911.

Total expenditure to March 31, 1911, exclusive of dredging, $148,611.15.

MAIN A DIEU.

Main à Dieu, Cape Breton County, is a small harbour on the eastern coast of Cape Breton island, 10 miles to the northward of Louisburg. It is open to the south

but is sheltered from the direct action of the sea by Scatarie island and by reefs in the bay and, partially, from a heavy undertow thrown in during easterly gales by a breakwater, built in 1881-2-4, extending from Burke's Point on the eastern side of the entrance 250 feet. A breakwater, built on the western side of the harbour in 1903-4, extending 230 feet in from 6 inches to 2½ feet at extreme low water, has had the effect of sheltering a portion of the foreshore only, and of rendering the anchorage less safe than it was prior to its construction.

An amount was appropriated for expenditure towards the construction of a wharf extending from near the outer end of the eastern breakwater, 246½ feet to 14 feet at extreme low water, and of a roadway over the breakwater, estimated to cost $17,700.

During the fiscal year 1910-11, no action was taken other than in making a survey and in taking soundings in anticipation of the preparation of a plan and specification of proposed wharf.

MALIGNANT COVE.

Malignant Cove, Antigonish county, is situated on the southeastern shore of Northumberland Strait, about 10 miles southwest from Cape George.

In the bight of the Cove, separated from the sea by a beach of gravel and shingle of from 100 to 200 feet wide at high water and about 4½ feet above that level, lies a pond fed by a small stream, and a shifting channel through the beach connects the pond with the sea.

During 1900-1-2, the department cut a channel through the beach, 30 feet wide at the bottom to a depth of 2 feet at low water and constructed piers 60 feet apart on either side of the channel extending 248 feet inwards through the beach, and 90 feet outwards, to 7 feet at low water. The piers, through the beach, were founded at the level of low water and are 10 feet wide on top and the outer piers are 16 feet wide for a distance of 69 feet and 28 feet wide for the remaining distance of 30 feet.

The piers are constructed of round native timber laid open-faced and fully ballasted, and their outer ends and channel faces are close-sheathed with 6-inch hardwood plank.

During 1902-3-4, the inner end of the western pier was extended inwards a distance of 60 feet with crib-work 10 feet wide to prevent the reopening of the old channel, and a cribwork protection, 109 feet long and 18 feet wide, was constructed on the beach to the eastward of the eastern pier to prevent the sea from going over the beach.

Contrary to expectations, it was found that the teredo was damaging the outer ends of the piers and, during 1904-5, their outer ends were protected temporarily by hardwood piling and, during 1905-6-7, the outer ends of the piers and the sides for a distance of 30 feet from the outer ends, were close-piled with creosoted timber.

As the outer ends of the piers were becoming weakened, it was decided to construct blocks 30 feet long and 24 feet wide with creosoted timber substructure at their outer ends and for that purpose the sum of $3,765.63 was expended during 1908-9 for creosoted timber.

During the fiscal year 1910-11, the sum of $1,057.44 was expended in closing a breach at the inner end of the western pier and removing sand from the channel. Spring tides rise 4½ feet.

Work was in progress July 12 to 29; August 20 to 31, and September 15 to 30.

Total expenditure on this work up to March 31, 1911, is $24,293.22.

MARGAREE HARBOR.

Margaree Harbor, Inverness county, at the mouth of the Margaree river, is on the west coast of Cape Breton Island, about 30 miles northeast of Port Hood. It had a narrow intricate channel through which the tide ran at the rate of four knots, and its entrance was obstructed by a bar of shifting sand over which there was, at times, a depth of only 5 feet at extreme low water.

Expenditures have been made by the department in the construction and maintenance of channel protection and improvement works on the west side of the entrance, and in the construction of beach protection work on the east side.

The works on the west side include works built by the provincial government and extended by the department, and work of improvement undertaken in 1900-1.

The depth at extreme low water in the channel opposite the west side protection work was found, in 1909, to be nowhere less than 10 feet, and over a bar outside, not less than 9 feet.

During 1909-10, the sum of $300.08 was expended in cutting down to 2 feet below low water, 24 feet of the outer end of the west side protection work, which had been damaged by ice during the winter of 1908-9, and in partly close-fendering the end face of the work thus exposed.

During the fiscal year 1910-11 the sum of $4,200.45 was expended; this amount was expended in general repairs to the sheathing, covering, &c.; in replacing a large quantity of ballast, and in constructing a 24 by 24 foot block to protect the outer end of the breakwater. Great difficulty was experienced in placing this block, owing to the lateness of the season and stormy weather.

Work of repairs was in progress May 26 to July 29, and September 19 to January 14, 1911.

On March 22, 1911, a contract was signed by Roger Musgrave & Son in the sum of $5,300 for the construction of a 100 foot extension of the breakwater for which the sum of $6,000 was appropriated.

Total expenditure to January 31, 1911, including $5,006 on beach protection works east side and a refund of $274.87 to the provincial government, $39,719.31.

MARGAREE ISLAND.

Margaree Island, Inverness county, is situated in the Gulf of St. Lawrence, 2½ miles off the western coast of Cape Breton Island, and 27 miles northeast of Port Hood.

A wharf, on the eastern side and near the southern extremity of the island, commenced in 1899-1900 and completed in 1901-2, is 100 feet in length and 20 feet in width, including 28 feet of crib-work, the southern side of which has been strengthened by the construction of a concrete wall 18 feet in length, 4 feet in width and 7 feet in average height, and a crib-work block 72 feet in length. During 1909-10, the sum of $1,725.90 was expended in reconstructing the outer 40 feet of the work and in repairing and reballasting the adjoining crib-work.

The depth at extreme low water at the outer end of the wharf is 5½ feet.

Spring tides rise 4 feet.

During the fiscal year 1910-11, the sum of $245.54 was expended; $65 to pay an outstanding account for creosoted timber; $29.50 to pay an outstanding account for boat hire in August last; and the balance, $151.04 in repairing the covering of the outer 40 feet block and in reballasting an empty face-chamber in main work.

Work was commenced November 15 and completed November 30.

Total expenditure to March 31, 1911, $9,146.29.

McNAIR'S COVE.

McNair's Cove, Antigonish county, is situated on the western side of St. George's Bay about 2 miles to the southward of Cape George.

A breakwater, 400 feet in length and 20 feet in width, built during 1872-3-4, on the north side of the Cove, was carried away in 1879 by drift ice, to within 100 feet of the shore end, down to from 3 to 6 feet at low water. During the summer of 1883, 70 feet of the shore end was rebuilt, and during 1884-5, the work was extended a distance of 94 feet, but this extension was badly damaged by drift ice in April 1885, and was subsequently carried away.

During 1886-7-8, the bottom of the damaged work was dredged out, and a new work, 169 feet in length, 32 feet in width on top, with a sloping face on the seaward side, 8 feet wide and sloping 1 to 1, was constructed, and on its completion, the total length of the breakwater was 330 feet, with a depth of 12 feet at low water, at its outer end.

The work was built entirely with native timber, and as it became weakened by the action of the teredo, particularly on the seaward face, during the years from 1890 to 1894, the outer end and the faces on each side of it, for a distance of 20 feet, were protected by creosoted timber close-piling, and its seaward face by a talus of quarried stone.

During the years from 1897-1901, the timber wall under the sloping face, which was damaged by the teredo, was reconstructed down to low water and close-fendered with hardwood timber, and the stone in the talus was raised to the top of the close-fendering.

During 1901-2-3, the inner end of the work, which was constructed partly in 1872, and partly in 1883, and was only 20 feet wide, was widened to 30 feet, for a distance of 120 feet, from the outer end.

In the year 1904-5, a block 80 feet long and 32 feet wide was placed across the outer end of the work as a protection to the old work, and to form an 'L' on its western side, for the improvement of the sheltered area on the leeward side of the breakwater. This block is constructed with round timber, creosoted to half tide, fully ballasted and protected on all outer faces with close-sheathing.

During 1908-9, the top of the outer end of the seaward side of the old work, for a distance of 80 feet and for a width of 16 feet, including the sloping face, was removed down to 2 feet below low water and reconstructed with creosoted timber up to half tide, and the new face was close-sheathed and the stone in the talus in front of it was raised to high water mark.

During 1909-10, the sum of $3,755.34 was expended in procuring creosoted timber for a proposed extension of the 'L' on the outer end of the breakwater 80 feet long and 32 feet wide.

During the fiscal year 1910-11, the sum of $2,444.88 was expended in repairing the inner face of the work for a distance of about 120 feet from the 'L' inwards, and in purchasing part of the materials required in the construction of a proposed extension to the present 'L', 40 by 25 feet in line of work, built of round timber crib-work with creosoted substructure and sheathed on the seaward face with 5-inch creosoted and hardwood sheathing. Depth at outer end 12 feet. Spring tides rise 4½ feet.

Work was in progress from September 21st to 30th; December 1st to 12th, and March 14th to 17th.

Expenditure on this work to March 31, 1911, is $83,900.03.

MELFORD.

Melford, Guysboro county, is a settlement about 4 miles in length on the western shore of the Strait of Canso about 8 miles from Mulgrave.

In October 1910, a contract plan and specification were submitted to the department for the construction of a wharf at Miller's cove, Melford, estimated to cost $6,600, but up to the 31st of March, 1911, tenders had not been invited.

A plan and specification for a wharf, estimated to cost $6,200, at a new site, Reeve's cove, 1¾ miles to the northward of Miller's cove, were forwarded on the 25th of April, 1911.

MERIGOMISH, (BIG ISLAND).

Big island, Merigomish, Pictou county, is on the Northumberland strait about 10 miles to the eastward of the entrance to Pictou harbour and is 3¼ miles in length and 1⅛ miles in width, and is connected, at the eastern end, with the mainland by a

sand bar 2½ miles in length, excepting during unusually high tides when the sea washed over the bar into the harbor of Merigomish, the eastern portion of which is within the island.

A wharf, built in 1899-1900, on the eastern side of the island nearly opposite the public wharf on the mainland known as Merigomish wharf, was a block and span structure extending 95 feet to 2 feet 6 inches at extreme low water. Spring tides rise 5½ feet.

During the fiscal year 1910-11, the sum of $782.65 was expended in extending the wharf, 35 feet, to 4 feet at extreme low water, and in repairs to the old work. The extension consists of a block 15 feet in line of work by 40 feet, with a span of 20 feet.

Work was in progress August 15 to 27, and September 21 to 27.

Total expenditure to March 31, 1911, $2,822.31.

MERIGOMISH (WEST).

Merigomish harbour, Pictou county, is on the Northumberland strait, 10 miles to the eastward of the entrance to Pictou harbor. The depth, at low water, over the bar at the entrance is 14 feet. Spring tides rise 5½ feet; neaps, 3½ feet.

There are three small wharfs; one known as 'Merigomish Wharf', 1½ miles to the eastward of Merigomish station on the Intercolonial railway, built in 1880; one on the French river near Merigomish station known as 'Merigomish station wharf', built in 1908-9, and one on Merigomish island known as 'Merigomish (Big island) wharf', built in 1899-1900.

The amount appropriated was for expenditure in the construction of a pile wharf at West Merigomish, 1½ miles to the westward of Merigomish station on the property of Mr. Fisher Smith, to be used in the shipment of grind-stones.

During the fiscal year 1910-11, no action was taken with regard to the expenditure of the amount appropriated.

MILL CREEK.

Mill Creek, Kings county, is a small farming settlement of some 200 or 300 people, situated on the eastern side of the Basin of Minas, 3 miles south of Cape Blomiden and about 4 miles north of Kingsport, the terminus of a branch of the Dominion Atlantic railway.

Nearly twenty years ago, the inhabitants, for their own convenience and accommodation in shipping fruit and farm products, built a small pile wharf, but, their available means having given out, they were unable to finish it. The unfinished wharf was 160 feet long, and from 20 to 25 feet wide, built of pile-work.

Between 1899 and 1910, the department made numerous small repairs, renewals and extensions, of which full particulars will be found in the departmental report for 1906-07.

In 1910-11, the department expended $947.27 in further repairs and renewals. The upper portion of the wharf was almost entirely rebuilt and a small block of crib-work was built underneath the outer end of the pilework portion of the wharf, in order to prevent the sea from going through and damaging vessels lying alongside.

Spring tides rise over 50 feet.

Work was begun on the 5th of September, 1910, and finished on the 31st of January, 1911.

MIRA RIVER.

Mira river, Cape Breton county, is a large stream flowing into Mira bay, a bay on the east coast of Cape Breton island, between Cow bay and Louisburg harbour. It discharges the waters of Mira lake and Salmon river, and is the outlet of an interior navigation of 25¾ miles, but the ordinary depth over the bar at its entrance into the

bay is only 4 feet and seldom exceeds 8 feet, except in extraordinary spring tides. Two miles above the entrance, the river expands into a lake of varying widths. It is crossed by the Sydney and Louisburg railway bridge and by a highway bridge near the entrance; by the Albert and Marion highway bridges, respectively 5¾ and 13¼ miles from the entrance, and by the Victoria bridge, at the head of navigation, 25¾ miles inland. These, with the exception of the Victoria bridge, are draw-bridges. During the summer season, several small steamers are engaged in passenger and freight traffic, landing being effected at small and inconvenient wharfs near the Albert, Marion and Victoria bridges.

During the fiscal year 1910-11, the sum of $700 was voted for expenditure in the construction of wharfs on the Mira river, but as no site was approved the amount could not be expended.

MUISE'S POINT.

Muise's point, Yarmouth county, is situated on the east side of the mouth of the Tusket river, about 17 miles southeast of Yarmouth. Within a radius of half a mile there are some seven or eight families.

In 1910-11, the sum of $1,199.48 was expended in building a small block-and-span wharf, with a stone bank approach. The blocks of crib-work, three in number, are 21 feet wide and 9, 11 and 15 feet high respectively, and 11, 11, and 21 feet long respectively. The two spans are 12 feet each. The stone approach is 85 feet long, 22 feet wide and from 4 to 9 feet high.

Work was begun on the 17th of September and finished on the 10th of November, 1910.

MULGRAVE.

Port Mulgrave, Guysboro county, is an important terminal and transfer station of the Intercolonial railway on the western side of the Strait of Canso, nearly opposite Port Hawkesbury and Point Tupper.

The amount appropriated was for expenditure in the purchase, reconstruction and extension of the 'Clancy' wharf in McNair's or Venus Cove (old Port Mulgrave) to the northward of the I. C. Ry. terminal.

During the fiscal year 1910-11, no action was taken with regard to the expenditure of the amount appropriated other than in the preparation of a plan and description of the property to be acquired by the department and of a contract plan and specification for the reconstruction and extension of the 'Clancy' wharf which is to be extended 122 feet to 6 feet at extreme low water or to the edge of a basin to be dredged to 15 feet at extreme low water.

Spring tides rise 5 feet.

MUSQUODOBOIT.

Musquodoboit, Halifax county, has a population of about 500 and is situated around the head waters of Musquodoboit harbour proper and Perpesawick harbour, which at their extreme heads are only about a mile apart.

In 1901-2, the department expended the sum of $1,183.26 in building a small wharf for the convenience of the inhabitants of the district and the shipment of lumber, of which some three million feet are annually exported; for the shipping of general farm produce, and the loading of fuel and general merchandise, the work consists of a block of cribwork, 51 feet long, 17 feet wide and 14 feet high, with an earth and stone approach 50 feet in width, 80 feet in length and of an average height of 9 feet.

In 1903-4, the sum of $271.39 was expended in completing to its full and proper width the earth and stone bank approach.

In the fiscal year 1910-11, the sum of $273.57 was expended in making repairs to the outer end of the wharf; the planking, guard-timbers, top cross-logs and longitudinals were replaced together with fenders and some filling in of the approach.

Work was begun November 12 and completed December 6, 1910.

NECUM TEUCH.

Necum Teuch, Halifax county, is situated on the east side of Necum Teuch bay at the mouth of Mosers river. It is 68 miles in an air line E.N.E. of Halifax, and 6 miles from Salmon river. The population of the place is about 400, engaged in farming and lumbering.

In the fiscal years 1902-3-4, the sum of $5,211.58 was expended in the construction of a wharf. The work is 394 feet long and 20 feet wide, with an ell on the outer end, giving a face length of 40 feet and a width of 30 feet. There is a depth of 16 feet of water at H.W.O.S.T.

In the fiscal year 1910-11, the sum of $396 was expended in covering the wharf for its entire length and width of 10 feet with 2-inch planking and in taking down and rebuilding the outer face of the ell.

Work begun September 6, completed October 3, 1910.

NEIL'S HARBOUR.

Neil's harbour, Victoria county, is situated on the eastern coast of Cape Breton island, about midway between Ingonish and Aspy bays.

The harbour is at the entrance of a small bay, open to the south and south-east, and extending inland about half a mile. It is sheltered from the north and east by Neil's Head, (a rock promontory from 10 to 20 feet above the level of high water springs), but not safe during gales from the south and south-east.

It is a large and important fishing station, and for the purpose of affording protection to the anchorage during south-easterly gales and a landing place for small vessels, during 1901-2-3, a breakwater extending to 17 feet at low water, was constructed off the southern end of Neil's Head, and connected with the public road by a road 79 feet long and 20 feet wide, cut through the bank. The breakwater, excepting the inner end for a distance of 44 feet, which is of round native timber crib-work, consists of close-faced squared timber work, 20 feet wide for a distance 114 feet from the inner end, 24 feet wide for a further distance of 80 feet and 56 feet wide for the remaining 32 feet. The work is very strongly constructed, is filled in solid with ballast, and is close-sheathed on the seaward faces, the outer end and on the inner face for a distance of 112 feet from the outer end. The sub-structure is of creosoted timber, and the seaward side is protected by a stone talus.

During the fiscal year ended June 30, 1905, the sum of $952.79 was expended in the removal of rocks and boulders off the beach inside the breakwater, which interfered with the landing of boats, and in placing the stone removed on the seaward side of the breakwater.

During the fiscal year ended June 30, 1906, the sum of $1,189.44 was expended in raising the talus, which had been flattened out, by placing 729 cubic yards of very heavy stone on it.

During an extremely severe south-east gale in December, 1905, the work was subjected to a terrific sea, which carried a large amount of the stone, in the talus, over the breakwater and dropped it along its inner face, although the stones weighed from 1 to 3 tons each.

As this deposit of stone prevented the inner face of the breakwater from being used for landing purposes, during 1907-8, the sum of $998.88 was expended in its removal, by divers, and the stone which amounted to about 170 cubic yards, was placed again in the talus.

During the year ended March 31, 1909, the sum of $778.76 was expended in raising the talus on the seaward side of the breakwater to high water mark; filling in the spaces between the stones with concrete, and filling in, with large stones laid in cement, a space about 20 feet wide between reefs to the eastward of the inner end of the breakwater where the sea at high water, during storms from the eastward, rolled in with great force and striking the seaward face of the work, disturbed the stone in the talus, and a lot of stone which had been washed over the work by the sea and deposited inside, was removed by divers and placed again on the talus.

During 1910-11, the sum of $216.23, was expended in the construction of a freight shed, 12 by 20 feet, on the inner end of the breakwater. Its construction was commenced on November 9 and was completed on November 28, 1910.

Total expenditure on this work up to March 31, 1911, is $21,486.04.

NEW CAMPBELLTON.

New Campbellton, Victoria county, is at the head of Kelley's cove, on the northern side of the Great Bras d'Or channel, about one mile from its entrance into the Atlantic ocean.

The cove is about half a mile in width, at the mouth, and a quarter of a mile in depth, and has a depth of water of about 20 feet at low water. It is sheltered from all winds, excepting southwesterly but as these blow down the Bras d'Or channel they do not cause much inconvenience.

It is the shipping place of the Cape Breton Coal Mining Co., and a port of call for the steamers of the Bras d'Or Steam Navigation Co. Owing to the want of a proper and permanent ballast ground, the ballast was often deposited by vessels where most convenient to them, without due regard to its damaging effects, and in consequence the depth of water in the cove has been reduced.

On Sept. 15, 1905, a contract was entered into, in the sum of $17,000 for the construction of a wharf at the end of the coal shipping pier, to serve as a landing place as well as a ballast wharf, and for repairing and strengthening the old shipping pier, which is to serve as an approach to the wharf.

The work of construction was commenced early in June, 1906, and was completed on January 24, 1907.

After the completion of the contract, the sum of $150 was expended, by day labour, in placing an additional amount of ballast in the face-chambers of the crib-work extension.

The work done under contract included the reconstruction of the top of the old shipping pier; the construction of a native round timber cribwork retaining wall, 165 feet long and 12 feet wide on top, along the southern side of the old pier; a creosoted timber pile extension at outer end of old work, 61 feet in length and averaging 22 feet in width, and of a crib-work extension, with creosoted timber sub-structure to serve as a ballast as well as a public wharf, forming an 'L' on the southern side of the pile extension, 200 feet long and 24 feet wide.

During 1910-11, the sum of $151.65 was expended in the construction of a freight shed 12 by 20 feet on the outer end of the wharf, and a further sum of $299.89 was expended in close-piling with native timber piles, the outer end of the northern face of the old shipping pier, to prevent the old ballast from falling out and shoaling the water alongside.

The work on the construction of the shed was commenced on Dec. 1 and completed on Dec. 8, 1910, and the close-piling was done between the 6th and 18th March, 1911.

NEWELLTON.

Newellton is situated about 2 miles northwest of Clarks Harbour, and has a population of about 350 people, all of whom are practically dependent upon the lobster fish-

ing for their livelihood. In the year 1900, a wharf was constructed, and a road from the wharf to the public road was constructed. This place has for years been one of the principal points at which the steam ferry service between Barrington Passage and Cape Sable island has regularly called and, in fact, the residents of Clarks Harbour, in order to reach the mainland, generally used this wharf. The fishermen in this vicinity have also found the wharf of great service as a place from which to conduct operations and as it can be reached in all kinds of weather and is easy of approach, as well as in a sheltered location, it has been a boon to the people of this vicinity and a most important work.

During the past few years, the seas have been making inroads upon the western side, so that this road bid fair to be cut off, leaving the wharf on a little island. In order to avoid this, and to also render the approach to the wharf safe, the sum of $750 was granted for the purpose of constructing a cribwork protection along the exposed portions of the foreshore, and during the past year, the sum of $749.14 was expended thereon.

The beach protection work is of the usual style, continuous cribwork, 210 feet in length, 8 feet wide on top, with an average height of 6½ feet. It has been satisfactorily and well constructed. Besides this work, some slight repairs to the wharf itself were effected; 30 tons of large stone were added to the approach at places where the ice and sea had partially denuded the same; 8 of the fender piles were replaced, and 1,000 feet of three inch planking were renewed in the covering. This work was begun on November 3, 1910, and completed on March 31, 1911.

Tides rise here, spring 9 feet; neap 6½ feet.

NEW HARBOUR.

New Harbour, Guysboro county, is on the southern or Atlantic coast of Nova Scotia, 30 miles to the westward of Canso harbour. It is merely a shallow bay, open to the southeast, at the head of which is the entrance of St. Catherine's river, navigable for boats five miles inland.

A contract, entered into in May 1900, for the construction of a breakwater at Black Point, on the western side of the bay, was completed September 27, 1900.

The breakwater consisted of a stone embankment, 160 feet in length and 7 feet in average height, between the shore and 'Black rock'; of a stone embankment 89 feet in length and 18 feet in average height, in extension of 'Black rock', and of 150 feet of crib-work, 25 feet in width with creosoted substructure and a talus on the seaward side sloping 1¼ to 1 from high water. The height of the cribwork, over 15 feet of its width on the seaward side, is 7 feet and over 10 feet of its width on the inner side, 3 feet 4 inches, above extreme high water. The depth, at extreme low water, at the inner and outer ends of the crib-work, are respectively 6 feet and 16½ feet. Spring tides rise 6 feet.

In October 1900, the outer section of the stone embankment was nearly destroyed, the crib-work was slighly damaged and most of the stone in the talus on the seaward side of the crib-work was carried away.

During the years 1901-2-3-4-5, the sum of $10,434.55 was expended in repairing and strengthening the crib-work; in constructing a concrete wall 89 feet in length, 12 feet in width, on top, and 10 feet in average height, over the remains of the outer embankment, and a concrete wall 75 feet in length, 8 feet in width and 4 feet in average height over 'Black rock'; in reconstructing about 30 feet of the outer end of the inner stone embankment, and in placing a talus of heavy stones (5 to 8 tons each), on the seaward side of the outer concrete wall and crib-work extension.

In 1906-7, the sum of $907.27 was expended in repairing the stone embankment between the shore and 'Black rock', in placing additional stone in the talus on the seaward side of the crib-work extension and in sorting and piling, at West Arichat,

the creosoted timber required in the construction of a proposed 24 by 24 foot block, to be placed in 12 feet at low water against the inner face of the crib-work extension.

In 1907-8, the sum of $1,299.16 was expended in completing repairs to the seaward face of the breakwater and in procuring the creosoted and native timber and other materials required to construct the 24 by 24 foot block undertaken in 1906-7.

During the fiscal year 1910-11, the sum of $914.83 was expended in general repairs to the stone embankment between the shore and 'Black rock', including the repairing and setting in concrete the covering stones that had been washed out.

Work was in progress August 10, 16 to 18 and 29 to 30, September 13 to October 20, and Nov. 10 to 12 and 28 to 30.

Total expenditure to March 31, 1911, $31,026.40.

NORTH EAST HARBOUR.

North East Harbour is a small village of about 400 people, situated about 2½ miles east of Cape Negro island. In the years 1905-6-7, a wharf was constructed costing about $4,000. This wharf consists of a composite cribwork and rock-bank approach about 180 feet in length, 16 feet wide; 900 feet in length of pile trestle bent work, 10 feet wide, the bents being separate 10 feet apart measured between centres, and a 'T' shaped head 50 feet square, also constructed of pile trestle bents, the same distance apart. It has at its head, a depth of water of from 7 to 8 feet at L.W.O.S.T.

During the past year, the sum of $500 was first granted for the purpose of repairing the approach, and completing the top work of the wharf. This amount was not sufficient, and a further sum of $200 was granted to complete the same. Of this $700, the sum of $687.26 was expended.

The amount of work done during the past fiscal year consists in raising the approach, for 110 feet of its length, a height of 2 feet 3 inches. The stringers and caps for 960 feet of its length, and the planking for 430 feet of its length were put in place. Most of this material was already on hand, which accounts for the extremely low cost of this work. The work was commenced on December 1, 1910, and was completed on March 31, 1911.

Tides rise here, spring 8 feet; neap 5½ feet.

NORTH INGONISH.

Ingonish (North), Victoria county, is on the northeast coast of Cape Breton island, about midway between Sydney harbour and Cape North. It is separated from the south bay of Ingonish by a narrow, rocky and precipitous peninsula, over two miles in length.

On December 6, 1899, a contract was entered into for the construction of a breakwater off Archibald's Point, on the north side of the bay, for the purpose of forming a harbour of refuge for fishing boats, and the work was completed on Dec. 20, 1900.

The breakwater is 484 feet long, with an 'L' 77½ feet long, and from 18, at the inner, to 24 feet wide at the outer end, and is constructed of squared timber, laid close-faced, with creosoted timber substructure, fully ballasted and fendered, sheathed on the seaward face and end, and protected on the seaward side by a heavy stone talus.

During 1901-2-3, the stone talus, which was somewhat flattened out by the action of the sea, was raised, at a cost of $2,466.88.

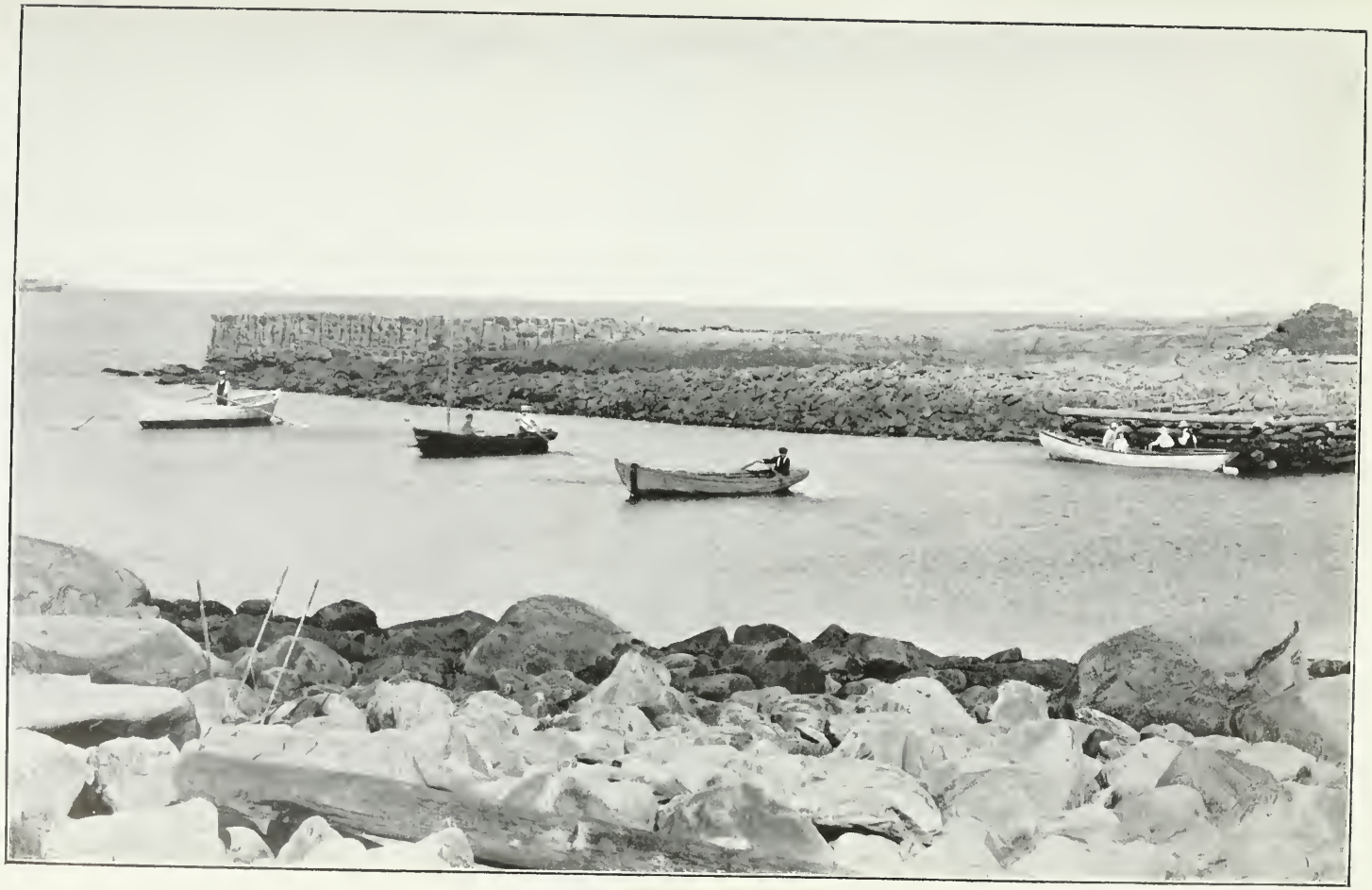
During the fiscal year ended June 30, 1904, the sum of $279.06 was expended in the removal, by submarine blasting, of several large boulders near the outer end of the breakwater, which were a source of danger to vessels or steamers approaching or leaving the breakwater.

The depth of water along the face of the 'L', at low water springs, is 11 feet. Spring tides rise 4 feet.

Eagle Head, N.S., Breakwater.

Eagle Head, N.S., Breakwater.

Somerville, N.S., Breakwater.



Moose Harbour, N.S., Breakwater.

During 1910-11, the sum of $173.63 was expended in the construction of a freight shed 12 by 20 feet, on a separate crib-work foundation at inner end of breakwater.

This work was commenced on Sept. 12 and completed Oct. 15, 1910.

Total expenditure on this work to March 31, 1911, is $30,732.19.

NORTH WALLACE.

The location of this wharf is described under the heading of South Wallace.

This wharf was first commenced prior to Confederation, by the Provincial Government. In the years 1890-91, this department, having taken over the wharf, constructed a larger wharf, 345 feet in length, 32 feet wide, of stone-filled, continuous crib-work; in the years 1905-6-7, this department constructed an extension from the head of this old wharf to the channel, a distance of 1,440 feet; the first 420 feet consisting of pile trestle bents, situated 10 feet apart, with a width of 16 feet on top; the last 20 feet is 40 feet wide on top, and is constructed of round logs, stone-filled crib-work.

During the fiscal year 1909-10, about $600 was expended in effecting repairs on the in-shore or older portion of the work. The work done consisted of the tearing down of about 120 feet in length of the old wharf, to a depth of 6 feet, and the rebuilding of the same. During the present fiscal year, the sum of $790 was expended in continuing these repairs and renewals, a further length of 80 feet. Some slight repairs to the new work were also made.

The 80 feet of old work, which is of the same width as the former wharf, built in 1891, was torn down to a depth averaging about 7 feet, and rebuilt. About 25 piles were replaced in the new work, most of them fender piles, and about 20 braces, all of which had been damaged during the past three years by the moving ice.

This work has been well done, and the renewal, which was made, consisted of crib-work of the usual type and is substantial and workmanlike in its character. This work was begun on April 18, 1910, and completed on July 15, 1910. Tides rise here, spring, 7½ feet, neap 5 feet.

NYANZA.

Nyanza, Victoria county, is a small settlement, 7 miles to the westward of the town of Baddeck, and is at the head of Indian bay on the northern side of St. Patrick's channel, an arm of the Bras d'Or lakes.

It is a port of call for the steamers of the Bras d Or Steamship Co., plying between the Sydneys and Whycocomagh, during the season, and is the shipping place for a large and important agricultural district.

The wharf constructed by the department during 1893-4-5, and widened during 1901-2, is 136 feet in length and 40 feet wide; it extends to 12 feet at low water, and is constructed of brush, with sides battering 1 in 6; covered with gravel, and fendered with hardwood piles.

During 1902-3, a warehouse, 30 by 18 feet, was constructed on the western side of the inner end of the wharf, and during 1905-6, a parcel of land, containing about half an acre, was purchased for the purpose of forming a yard for cattle, sheep, &c., while waiting for shipment.

Of the amount voted for 1910-11, up to March 31, 1911, the sum of $2,374.91 was expended in repairs to the outer end of the wharf, and in the construction of a creosoted timber pile extension to the wharf, 50 feet long and 40 feet wide, and in completing the same, excepting the placing of covering, cap-timbers and fender piles.

The work was done between the 20th and 30th of December, 1910, and Feb. 3 to March 31, 1911.

OGDEN'S POND.

Ogden's pond is on the western shore of St. George's bay, about 13 miles south from Cape George, and 1½ miles in a northeasterly direction from the entrance to Antigonish harbour. It is a small sheet of water, about 100 acres in extent, separated from the bay by a sand beach of from 130 to 250 feet in width.

For the purpose of rendering the pond, which has a depth of over 10 feet at low water, accessible to boats and small craft, during 1900-1-2, a channel 30 feet wide and 285 feet long was cut through the beach and the flat inside, down to a depth of about 1½ feet below low water, and a channel protection work, 350 feet in length, was constructed on the northern side of the entrance. The work consisted of a brush and stone embankment, 70 feet long and 8 feet wide on top, with sides sloping ½ to 1; a pile, brush and stone work, 260 feet long and 10 feet wide, close-sheathed on the seaward face, and a round timber crib-work block at the outer end 20 by 20 feet, with creosoted timber substructure, and close-sheathed on all outer faces.

During the year 1902-3, the sum of $649.87 was expended in repairing and levelling up the outer block, which had settled by undermining of the sandy bottom, and in protecting its base with brush and stone; also in replacing stone in the pile, brush and stone work, which, being uncovered, had been washed out by the sea.

On November 11, 1902, during a terriffic northeast gale, the brush and stone in the work were washed out by the sea, and afterwards, for a distance of 130 feet, the piles were broken off and washed away, leaving the crib-work block at the outer end uninjured.

In 1903-4, the sum of $1,449.87 was expended in replacing the damaged pile-work, for a distance of 130 feet, with crib-work; in refilling the balance of the pile-work with brush and stone, and in placing a covering over all; and further a quantity of ballast, about 160 cubic yards, was delivered to be used in the protection to the channel through the flat, inside of the beach.

In 1904-1905, the sum of $499.87 was expended in constructing a pile, brush and stone work 100 feet in length, on the south side, and a brush and stone dam, 80 feet in length, on the north side of the channel through the flat, inside of the beach, for the purpose of confining the tidal streams, and the work done proved very satisfactory.

In 1905-6, the sum of $799.76 was expended in the construction of additions to the dams inside of the beach, to confine the channel through the flats. The extensions are 330 feet long on the northern and 270 feet on the southern side, 7 feet wide on top and 6 feet high, and were constructed with brush and stone, laid in alternate layers.

During the fiscal year 1910-11, the sum of $349.99 was expended in reballasting the channel protection piers, covering the same, repairing brush and stone channel protection work on the inside of the harbor, and in deepening the channel by hand, and horse and scraper dredging.

Work was in progress July 12 to 23, August 26 to 31, and September 6 to 29.

Total expenditure to March 31, 1911, $7,433.48.

ORANGEDALE.

Orangedale, Inverness county, is an important settlement on the Intercolonial railway, 30 miles from Mulgrave and 62 miles from Sydney by rail and 25 miles from Baddeck by water. The chief industries are lumbering and farming.

During the fiscal year 1910-11, the sum of $2,992.47 was expended in procuring all the materials, including creosoted timber, required for the construction of a block and span wharf with creosoted substructure, 163 feet in length, 16 feet in width on top, with an 'L' at the outer end 20 by 30 feet. The depth, at low lake level, along the outer face, is 9½ feet.

OSTREA LAKE.

Ostrea Lake, Halifax county, is a fishing district situated near the mouth of Musquodoboit harbour, about 10 miles below the village of Musquodoboit harbour and 30 miles east of the city of Halifax.

In the fiscal year 1907-8, the sum of $1,521.33 was expended in improvements and extensions to the public wharf; the work done consisting of a block of crib-work 60 feet long, 50 feet wide and from 3 to 6 feet high, between the shore and a block built some years ago at the edge of the channel. A pile-work addition was also constructed 50 feet long and 10 feet wide.

During the fiscal year, 1910-11, the sum of $94.19 was expended in making repairs to planking and guard-timbers and the placing of 7 new fender piles at the head of the wharf.

Begun December 20, completed December 24, 1910.

OWL'S HEAD.

Owl's Head, Halifax county, is a fishing settlement on the Atlantic coast, immediately west of the entrance to Ship harbour, 50 miles east of the city of Halifax. The population of the place, within a radius of about one mile, is about 300, dependent, almost wholly, upon the fisheries. The value of the annual catch is about $17,000.

In 1908-9, the sum of $1,943.08 was expended in the partial construction of a public wharf and in the purchase of timber for its completion in 1909-10.

During the year 1909-10, the sum of $494.96 was spent in completing the wharf. The completed work is 220 feet long, 20 feet wide, of solid stone-filled crib-work, 5 feet high at the shoreward and 18 feet high at the outer end, where there is a depth of water at L.W.O.S.T. of 10 feet.

During the fiscal year 1910-11, the sum of $843.20 was expended in the construction of an ell to the wharf, 35 feet long, 25 feet wide and about 22 feet in height at the outer end, where there is a depth of water at L.W.O.S.T. of 12 feet.

Work begun July 9, completed September 13, 1910.

PARKER'S COVE.

Parker's Cove, Annapolis county, is a small indentation on the southeast shore of the Bay of Fundy, 15 miles northwest of Digby Gut, and 7 miles north of Annapolis, the county town. The population of the settlement is about 250 people, engaged in fishing and farming.

In 1883-4, the department constructed a small crib-work breakwater, 200 feet long, 23½ feet to 26 feet wide on top and at the outer end 16 feet high, where at high tide there was a depth of about 11 feet of water.

From 1900-8, the department made numerous expenditures, of which a full account will be found in the report for 1907-08.

In 1908-9, the department expended $905.98 in the purchase of timber for the construction of a breakwater on the west side of the little harbour.

In 1910-11, the sum of $2,000 was expended in constructing the work for which timber was bought in 1908-9. The breakwater, not quite completed, is 140 feet long on the east side, 120 feet long on the west side, from 22 to 30 feet wide on top and from 8 to 15 feet high. To finish the work will cost about $400. To extend it to low water mark would cost about $4,000.

The sum of $933.66 was also expended in extensive repairs to the east or main breakwater. The upper portion of the angle or elbow, which was badly damaged by heavy seas in the winter of 1909-10, was renewed as to stringers, planks, guard timber and a few fenders, and 100 feet in length of the top of the shoreward end was rebuilt and raised from 1 foot to 3 feet. Work on the construction of the west breakwater

was begun on the 21st of June and suspended to the 24th of September, 1910. The repairs to the east breakwater were begun on the 3rd and finished on the 30th of November, 1910.

PARRSBORO.

Parrsboro is an important town of about 3,000 people, situated on the right bank of the Parrsboro river, which empties into the north side of the Basin of Minas. From 40 to 50 million feet of lumber are shipped annually, whilst the Cumberland Coal and Railway Company have utilized this port as its shipping outlet for the vast amount of coal which they have been accustomed to shipping.

About the year 1900-1, a wharf was constructed; this wharf consisted of a short length of block and span work with an additional length of 170 feet of pile trestle bents and a head 38 feet in length, built of solid stone-filled crib-work. The width of the wharf was 38 feet on top for its entire length. In the fiscal year 1904-5, an additional pier 38 feet square, was constructed of solid stone-filled crib-work, the height of which is 38 feet, so that the last 38 feet in length of the work is 76 feet wide. Upon this head of this pier, a freight house 42 feet long and 50 feet wide was erected.

During the past fiscal year, the sum of $1,353.49 was expended in replacing the plank on the older portion of the pier, and sheathing it for its entire length for a height of 8 feet. The former sheathing was carried away during a gale in the year 1906, and in the succeeding year was replaced to within 8 feet of the top of the work, and the sheathing placed on it during the last fiscal year was to complete the same to the top of the work.

During the past year, about 35,000 feet of four inch plank were replaced, besides new guard rails, exterior stringers, and about 6,000 feet of sheathing were put in the work.

The work was commenced on July 2, 1910, completed August 11, 1910. Tides rise here, spring 40 feet, neap 33 feet, but where this is located, the tide leaves it dry about one hour before low tide.

This protection is constructed along the top of a shingle beach, which forms the outside line of Parrsboro harbour. It is located in a very exposed position, and from time to time suffers damage from heavy sea, ice, &c. During the past fiscal year $61.13 was expended in effecting trifling repairs to the work, which had been damaged in a storm early in the fall of 1910.

It was commenced on the 21st November, 1910, and completed on the 30th November, 1910.

PETITE RIVIÈRE.

Petite Rivière, Lunenburg county is the centre of a thriving farming and lumbering district, situated about 12 miles southwest of the town of Bridgewater, and 6 miles west of La Have river. The village which has a population of 500, is situated near the mouth of a small river, from which it takes its name. The nearest railway station is 6 miles and the nearest harbour, La Have, 6 miles distant. A small harbour is formed by the channel of the river which empties into a shallow bay through a sand beach.

From 1905 to the end of the fiscal year 1908, the department constructed a breakwater at this place, 1,220 feet long the first 900 feet, 16 feet wide and the outer 320 feet 20 feet wide. It is from 5 to 13 feet high and rests upon mattresses of brush, from 20 to 30 feet wide and about 2 feet in thickness.

During the fiscal year, 1910-11, the sum of $118.66 was expended in the purchase of timber for repairs required to the work which will be undertaken next year.

PHINNEY COVE.

Phinney Cove, Annapolis county, is a very slight indentation in the general coast line of the south side of the Bay of Fundy, 9 miles east of Parker's Cove and 3 miles west of Hampton. The population of the place, within a radius of a mile and a half, is about 150 people, making, roughly speaking, two-thirds of their living by fishing and one-third by farming. The lack of shelter for the fishing fleet, comprising about 25 boats, being a great drawback to the development of the industry. The department in 1907-08, built a breakwater by contract, at a cost of $5,700. The work is 200 feet long, 27 feet wide and from 9 feet high at the shore end to 23 feet at the outer end, where at high water, there is about 20 feet of water. The work is substantially built of native timber crib-work, well fendered, bolted and fully ballasted.

Spring tides rise about 30 feet.

In 1910-11, the sum of $499.85 was expended in trifling repairs to the breakwater, built in 1907-8, and in purchasing timber for the purpose of extending the breakwater next year.

Work was begun on the 4th and finished on the 13th of October, 1910.

PICTOU ISLAND.

Pictou Island, Pictou county, is situated in the Strait of Northumberland about 10 miles northeast of the entrance to Pictou harbor.

There were two wharfs on the south side of the island; one near the west end known as the 'West wharf' and one near the centre, known as the 'East wharf'.

The 'West wharf' is 324 feet in length and 20 feet in width (with the exception of the inner 55 feet, which is only 12 feet in width), and has an 'L' on the east side of the outer end 60 by 30 feet. The depth at extreme low water at the outer end is 4 feet 6 inches.

The 'East wharf', originally 328 feet in length and 20 feet in width with a depth at extreme low water at the outer end of 4 feet 9 inches, was damaged in 1906 and has since been destroyed.

In November, 1909, the sum of $6 was expended in transferring some plank (left after the completion of work at Abercrombie Point) to the island and in repairing the covering of the West wharf.

During the fiscal year 1910-11, the sum of $1,148.75 was expended in completing the renewal of top work of the West wharf from the inner end outward with the exception of placing about 400 cubic yards of ballast.

Work was in progress May 2 to June 11, and July 8 to 22.

Total expenditure on East and West wharfs up to March 31, 1911, $15,570.12.

PICTOU LIGHT BEACH.

The beach forming the southern side of the entrance to Pictou harbour, known as Pictou Light beach, extends about one mile in a northerly direction inclosing Moodie cove. The outer end, on which stands a lighthouse and keeper's dwelling, is protected by a breast work of timber and stone 400 feet in length, and by a work of brush and stone extending from side to side, opposite the southern extremity of the breast-work, and including property under the control of the Department of Marine and Fisheries.

In 1904-5, a title was acquired by the Department of Public Works to a portion of the beach 1,520 feet in length, adjoining the property of the Department of Marine and Fisheries.

Works undertaken by the Department of Public Works in 1898-99, for the protection of the beach, now include a work of brush and stone 12 feet wide on top and 4 feet high, founded at one foot above extreme high water and extending 1,200 feet

from the southern extremity of the breast-work which protects the property of the Department of Marine and Fisheries, and two groynes, one of crib-work 75 feet in length and one of brush and piles 55 feet in length.

In 1905-6, the sum of $996 was expended in reconstructing the top of the brush and stone work, from within 200 feet of its inner end to its outer end, and in repairing the brush and pile groyne.

During the fiscal year 1910-11, the sum of $1,528.93 was expended in raising the brush and stone work from one to three feet over a distance of 900 feet from its northern extremity and in refilling the southern groyne with brush.

Work was in progress July 25 to September 29, and February 11 to 28.

Total expenditure by the Public Works Department to March 31, 1911, including $300 paid for part of beach in 1894-5, $6,927.09.

PINCKNEY'S POINT.

Pinckney's Point, Yarmouth county, is a small fishing and farming village of about 150 people, situated near the extremity of the headland between Chebogue river and Little river, a distance of about 12 miles south southwest of the town of Yarmouth.

Spring tides rise 12 feet; neaps, about 10 feet.

In 1901-02, the department expended the sum of $998.73 in constructing a small breakwater for the purpose of affording some small measure of protection to the fishing boats, and to serve as a landing wharf for an occasional schooner load of general merchandise for local consumption.

The work consists of a block of round log crib-work, 20 feet square, 14 feet high, with an approach 93 feet long, 20 feet wide and from 4 to 13 feet high, built of stone and walled up on each side with split boulders. The outer edge of the crib-work block is dry at low water.

In 1902-3 the sum of $48.69 was expended in flooring the block of crib-work 20 feet square, built the previous year and placing eight fenders.

In 1903-4, the sum of $68.26 was expended in replacing a quantity of large stones on the shoreward end and seaward side of the work, which were washed and lifted out of position by heavy waves and ice, during the previous winter.

In 1910-11, the sum of $969.26 was expended in constructing an extension to the wharf. The new block is 30 feet long, 22 feet wide and 15 feet high, substantially built of round log crib-work and filled with ballast.

Work was begun on the 10th and finished on the 30th of October, 1910.

PIPER'S COVE.

Piper's Cove, Cape Breton county, is on the north-eastern end of the Great Bras d'Or lake, between the entrance to East bay and Barra strait, which connects the Great with the Little Bras d'Or lake.

Plan and specification for the construction of a block and span wharf, to be built by day labour, were prepared, and the creosoted timber required has been procured.

Up to March 31, 1911, out of the amount voted for 1910-11, the sum of $5,110.74 was expended.

The proposed wharf will be 206 feet in length and 20 feet in width, with an "L" on the northern side of the outer end 40 by 20 feet, and will extend to 8 feet at low water. The blocks will be built of round timber, creosoted to high lake level, fully ballasted and fendered, and the outer faces of the outer block are to be close-sheathed between the fenders.

PLEASANT HARBOUR.

Pleasant Harbour, Halifax county, is a well sheltered harbour or bay, situated 3 miles west of Tangier, and 4 miles east of the mouth of Ship Harbour. It is about 48 miles in an air line east of Halifax. It embraces a scattered population of about 200 engaged in fishing and farming.

In 1908-9, the sum of $749.99 was expended in the construction of a public wharf and in the purchase of timber for its completion.

During the fiscal year 1910-11, the sum of $790.87 was expended in the completion of the work.

The completed work consists of a stone and earth approach about 50 feet in length; a block and span wharf 50 feet in length, 20 feet wide, with an ell 20 feet by 30 feet at the outer end, where there is a depth of 11 feet of water at L.W.O.S.T.

Work begun September 6, completed October 31, 1910.

POMQUET HARBOUR.

Pomquet harbour, Antigonish county, is situated about midway between Antigonish and Tracadie harbours on the southern side of St. George's bay.

During the fiscal year 1910-11, the sum of $1,299.25 was expended in deepening the channel in three different places where mussel banks had formed; first near the entrance; second 1¾ miles towards Pomquet Village, and the third above the highway bridge which crosses Morrell pond. The work was performed by long handled shovels loading into small scows. Spring tides rise 4½ feet.

Work was in progress July 5 to 30, and August 1 to 29.

Total expenditure on this work to March 31, 1911, is $1,299.25.

PORT DUFFERIN.

Port Dufferin, Halifax county, formerly called Salmon River, is a thrifty village of 500 to 600 people, engaged in fishing, lobster-canning and gold-mining. It is situated at the head of Salmon river and empties into the inlet known as Beaver harbour, about 85 miles east from Halifax by highroad and about half way between Halifax harbour and Canso.

In 1898-99, the sum of $1,646.69 was expended in constructing a public wharf. The work consists first of a stone and earth embankment, 106 feet long, 35 feet wide and of an average height of 4 feet, followed by a block of cribwork 142 feet long and 28 feet wide with an ell on the outer end, giving a face length of 56 feet. The height of the wharf is from 8 to 20 feet; it is constructed of cribs 7 feet square, covered by 3-inch plank and filled up to high water with stone ballast.

In 1904-5, the sum, of $481.16 was expended in putting a new floor to the wharf, including, plank, stringers and guard timbers.

During the fiscal year 1910-11, the sum of $1,203.39 was expended in rebuilding the old cribwork wharf in pile and timber trestle. The completed work is 120 feet long, 35 feet in width, with an ell 35 by 40 feet.

Work begun September 1, completed September 16, 1910.

PORT FELIX.

Port Felix, Guysboro county, is a fishing station on the southern shore of Nova Scotia, about 28 miles from the town of Guysboro and 23 miles west of Canso.

During the fiscal year 1910-11, the sum of $5,000 was voted for the construction of a public wharf, 225 feet in length and 20 feet in width with an "L" at the outer end 40 by 20 feet and depth of 10½ feet at its outer end at L. W. springs. Spring tides rise 6 feet. The work is to be constructed of round timber crib-work, close-sheathed

with hardwood plank around the "L" and covered from end to end with 4 inch spruce planking.

On September 29, 1910, a contract for the construction of the wharf was entered into by the Department with Messrs. A. W. Gerroir and Kinsman Sweet, Antigonish, N.S., for the sum of $4.309.

Up to March 31st. 1911, no further action had been taken.

PORT GEORGE.

Port George, Annapolis county, is a village of some 400 people, situated on the south shore of the Bay of Fundy, 37 miles northeast of Digby Gut, 41 miles southwest of Scott's Bay, 7 miles southwest from Margaretville, and 9 miles northwest from Middleton on the Dominion Atlantic railway.

Some years before Confederation, the Provincial Government built a western breakwater and an eastern pier or wharf. The breakwater is 440 feet long, from 25 to 35 feet wide on top, and, at the outer end, where there is about 21 feet of water at H.W.O.S.T., it is about 25 feet high.

It is built of round log stone-filled crib-work, the western or seaward face and outer end being close-sheathed.

The wharf, on the eastern side of the little harbour is 205 feet long, 20 feet wide and 18 feet high at the outer end. It is built of round log crib-work, and the outer end, on which is built a small lighthouse, is close-sheathed. In 1874, the harbor was taken in charge by this department, and in that and the following year, the sum of $7,000 was expended in repairing and refacing the breakwater, which was much decayed.

Large expenditures have since been made for repairs and improvements, details of which may be found in annual report of 1904-05.

In 1907-08, the sum of $3,050.68 was expended in taking down and rebuilding a portion of the shore end of the breakwater, which was very old and dilapidated. The new piece is 50 feet long, 31 feet wide and from 14 to 16½ feet high.

Spring tides rise 30 feet.

In 1910-11, the sum of $3,000 was expended in taking down and rebuilding the shore end of the main or west breakwater. The piece of work rebuilt was 81 feet long, from 25 to 35 feet wide and from 12 to 20 feet high. Some repairs were also made to the eastern or detached breakwater. About 30 feet in length of the guard timber and upper face log was renewed, and the covering for the same distance, a few extra stringers were inserted and about 20 tons of ballast were placed.

Work was begun on the 15th of August and finished on the 23rd of November, 1910.

The work was transferred to the control of the Marine and Fisheries Department, June 12, 1888.

PORT GREVILLE.

Port Greville is a village of about 400 people, situate 12 miles west of Parrsboro. Important ship building and lumbering interests are located at this place, which interests are mainly dependent upon the security of the harbour.

The harbour is formed by a high gravel bar lying parallel to the shore, inside of which the river runs for a half mile before reaching low water mark.

For the purpose of protecting the harbour, the department, in 1874, constructed upon this gravel bar or beach, a cribwork beach protection 2,200 feet long, 10 feet wide, on top, with an average height of 7 feet. This was rebuilt in 1902-03.

In the fiscal year 1886-87, the department constructed a breakwater off the eastern end of this protection, which was 250 feet in length, 21 feet in width on top, with an average height of 20 feet. It has a slope on the seaward end of ½ to 1, whilst the sea-

ward and outer faces were sheathed with 6-inch timber. In the fiscal year 1905-6, this work was extended a further distance of 180 feet, being of the same width as the former portion of the work, and having a height at its outer end of 36 feet, with the seaward and outer faces being both sheathed with five inch hewn timber.

This extension was built, because the gravel bar was forming on the inside of the old breakwater and threatening to fill up the entire harbour. Since this extension was constructed, this gravel bar has disappeared, and several times the washing away has been so great that scouring has taken place along the middle of this extension, threatening at time to undermine a portion of the breakwater. About two years ago this occurred and about $800 was expended in piling along the inside of the breakwater at the place where scouring had again taken place a little farther out on the inside of this work, and the sum of $202.33 was expended in driving a line of piles about 40 feet in length along the inside of the work. This line of piles is situated about six feet inside of the work. The intervening space has been filled in with ballast and gravel. The work was commenced on the 5th December, 1910, and completed on the 6th January, 1911. Tides rise here 39 feet spring, and 33 feet neap.

PORT HAWKESBURY.

Port Hawkesbury, Inverness county, is on the eastern side of the Strait of Canso nearly opposite Port Mulgrave.

In 1902-3-4, a wharf known as the 'long wharf' was acquired and reconstructed. The work consists of an abutment 35 feet in length with end and side walls of stone; of 391½ feet of block and span work, and of crib-work head 73 feet 9 inches, in line of work, by 112 feet.

During 1904-5, a warehouse 80 feet in length and 29 feet in width was constructed by the department on the outer end of the wharf.

During 1905-6, 1907-8, and 1908-9, small sums were expended in repairs to the old and new warehouses and to the retaining wall at inner end of wharf; in strengthening the horizontal fenders at outer end of wharf, and in constructing a gangway at inner face of the crib-work head.

During the fiscal year 1910-11, $219.70 was expended in repairing and painting old warehouse; in painting new warehouse, and in repairs to covering of wharf.

Work was in progress May 2 to 21, and September 5 to 9.

Total expenditure to March 31, 1911, $26,250.02.

PORT HILFORD.

Port Hilford, Guysboro county, is at the head of Indian Bay on the southern or Atlantic coast of Nova Scotia, 5 miles to the eastward of the entrance to St. Mary's river.

A contract entered into, in September 1899, for the construction of a breakwater 300 feet in length and 22 feet in width, with an 'L' of 22 feet on the north side at the outer end, was completed in September, 1900.

In 1901-2, the sum of $2,724.05 was expended in raising the work, which had settled, to its original height.

In 1907-8, the sum of $6,326.56 was expended in close-piling, with creosoted timber, 135 feet of the seaward face from the outer end inward, the inner end and back of the 'L' and 80 feet of the inner face from the 'L' inward, and in placing quarried stone on the seaward side to protect the piling which could not be driven as far as originally intended.

In 1908-9, the sum of $5,836.53 was expended in constructing a block at the outer end of the breakwater, 41 feet in length (across outer end and 'L') and 27 feet in average width, and in extending the close-sheathing on the inner side 161½ feet inward.

The new outer block is of open-faced crib-work, with creosoted substructure, fully ballasted and close-fendered at the ends and outer face. Depth at outer face, at extreme low water, 13½ feet. Spring tides rise 6 feet.

As the repairs and extension asked for were completed in 1908-9, no action was taken with regard to the expenditure of the amount appropriated for 1910-11.

PORT HOOD HARBOUR.

The harbour of Port Hood, Inverness county, is on the east coast of Cape Breton island, about 20 miles to the northward of the northern entrance to the Strait of Canso.

The harbour was formerly a secure one; Smith island, which forms its west side, having been connected with the mainland by a beach of sand. In 1839, the sea made a break through the beach; the opening, at first narrow, was enlarged by the tidal current, with increasing rapidity, until it was entirely swept away. The harbour is now unsafe during northerly gales, except in a small cove on the east side of Smith island.

Works forming part of a proposed breakwater, of brush and stone with stone covering and with a talus of stone on the seaward side, to close the northern entrance, are: a work, undertaken in 1903-4, and continued every year up to 1908-9, extending, from a point on the mainland 1,200 feet to the northward of the public wharf towards a point on the island to the northward of Smith Cove, 1,600 feet to 19½ feet at extreme low water, also a work, built during the fiscal year 1909-10, extending, from the island, 633 feet to 21 feet at extreme low water, or to within 2,500 feet of the outer end of the work extending from the mainland. The work on the mainland side is one foot below extreme high water from the inner end to a point 900 feet from the inner end, three feet below extreme high water from 900 to 1,400 feet from inner end and sloping from 3 feet below extreme high water to 19 feet 9 inches below low water at the outer end. The work, on the island side, slopes from about the level of high water at the inner end to 21 feet below low water at the outer end.

Spring tides rise 4 feet.

During the fiscal year 1910-11, the sum of $22,412.35 was expended in laying a mattress 44 feet wide and 4 feet thick from the end of work on the Island side within 920 feet of the outer end of work on mainland or a distance of 1,580 feet. This mattress work is to serve as a foundation for crib-work.

Work was in progress June 22 to August 31, and in securing work for winter, October 6 to 21.

Total expenditure to March 31, 1911, $115,920.39.

PORT HOOD WHARF.

Port Hood, the shiretown of Inverness county, is on the west coast of Cape Breton island, 20 miles north of the northern entrance to the Strait of Canso.

A pier on the east side of the harbour, commenced by the provincial government in 1865, was originally 550 feet in length and 24 feet in width, with an "L" on the south side of the outer end 100 feet in length and 25 feet in width. It came under the charge of the federal government in 1871, since which time extensive repairs and renewals have been made, including the construction of a new block, 125 by 25 feet at the outer end, in 1873; the construction of a block, 50 by 32 feet at the south end of the "L" in 1888-9, and the construction of a block, 71 by 24 feet, at the outer end in 1889-90. The old provincial government work was of square timber, close-faced; the additions and parts re-constructed by the department are of round timber laid open-faced The pier has been protected on the seaward side at the outer end and on the south end and inner side of the "L" by close-piling, and on both sides to within 74 feet of the outer end by a stone talus.

Repairs and improvements were made in 1890-1-2, and nearly every year since 1896-7, including renewal of floor-stringers and covering at the inner end; raising,

repairing and close-piling the outer end "L"; in placing quarried stone in the talus on the seaward side, and in general repairs to the seaward face.

During 1909-10, the sum of $1,299.67 was expended in effecting the following repairs; a section of the seaward face of the work, 85 feet from the outer end, 40 feet in line of work by 15 feet in width, was cut down to low water and rebuilt; a section of the outer end face, 25 by 20 feet, was cut down to an average depth of 5 feet and rebuilt; floor-stringers, covering and cap-timbers were replaced at the inner end for a length of 35 feet; 50 cubic yards of large quarried stone was placed in the outer end of the talus; about 30 piles were driven where required, and general repairs were made to the covering.

During the fiscal year 1910-11, $1,297.48 was expended in renewing close-piling at outer end; in renewing covering where necessary; in cutting down to low water and reconstructing two sections of work, 35 feet by 12 feet and 25 feet by 13 feet; in cutting down to 1 foot below high water and reconstructing a section of work 30 feet by 24 feet, and in placing 87½ cubic yards of heavy stone in talus on seaward side of work.

Work was in progress July 13 to 30, August 4, to September 19, and October 1 to 13.

Total expenditure to March 31, 1911, $81,289.08.

PORT MAITLAND.

Port Maitland, Yarmouth county, is a prosperous and important fishing and farming village, with a population of about 600, situated on the southeast side of the mouth of the Bay of Fundy, 12 miles north of the county town of Yarmouth.

The harbour works were begun about the year 1859, by the Provincial Government. They consist of an eastern and a western or main breakwater of crib-work. The former is 400 feet long by some 20 feet wide and the latter 500 feet long, 22 to 25 feet wide, with a return 54 feet long 24 feet wide and 27 feet high, along which there is a depth of water of 19 feet at H.W.O.S.T. The breakwaters, or piers, inclose between them a snug high water harbour of two and a quarter acres in extent.

In 1873-4, the department raised and extended the eastern breakwater, and has since maintained and improved the works. Details of expenditure incurred and work done may be found in the annual report of 1904-05.

Between 1907 and 1910 three expenditures were made in repairs and renewals, $199.61, $1,671.05 and $4,798.38, respectively. Details in report for 1909-10.

In 1910-11, the sum of $1,872.89 was expended in repairs and renewals to the breakwater. The work done consisting of the taking down and rebuilding a portion of the south or seaward face of the western breakwater, 50 feet long, from 12 to 15 feet wide and from 18 to 22 feet high. Repairs were also made to the floor of the shoreward end of the work, including new plank, stringers and guard timbers. A few minor repairs were also made to the upper portion of the north breakwater.

Work was begun on the 1st of September and finished on the 26th of October, 1910.

PORT MALCOLM.

Port Malcolm, Richmond county, formerly known as Sea-Coal bay, is situated on the western side of the entrance to Inhabitants bay and 1½ miles north from the southern entrance to the Strait of Canso.

During the fiscal year 1910-11, an Order in Council was passed authorizing the purchase for $2,100 of Mr. Edward Malcolm's wharf property, including a wharf extending 225 feet to 6½ feet at extreme low water, and two fish stores.

The 'Malcolm's' wharf is to be reconstructed and extended 30 feet to 9 feet at extreme low water at an estimated cost of $4,000.

Spring tides rise 5 feet.

PORT MEDWAY.

Port Medway is a village of about 700 people situated on the south side of Port Medway bay, about 3 miles from its mouth, and about 11 miles north east of Liverpool Town. In 1875-76, beach protection works were built on the shore near Foster's Point. The works consisted of two pieces of round log stone-filled cribworks; the south piece 240 feet in length, 10½ feet in width and about 6 feet in height, and the northern piece 450 feet long, 11 feet wide on top and ranging in height from 6 to 9 feet. At different times, considerable repairs have been made on the northern portion of this work, whilst the southern portion has been practically abandoned, owing to the fact that it practically protected private property, which has since decreased in value, and the boats shipping, etc., use only that portion of the harbour which is now protected by the northern portion of the breakwater. In fact, the southern portion of this breakwater for a length of about 100 feet, was abandoned a number of years ago, so that the breakwater as it now exists, is about 350 feet in length, instead of 450 as formerly.

During the past fiscal year, the sum of $1,000.95 was expended on this work. The breakwater was raised for its entire length, 2 feet in height, and 300 feet of its length was sheated with 7 inch round spars, flatted on the inside face About 80 feet of the breakwater was rebuilt for a height of 4 feet, and 250 tons of new ballast were placed in the work. The whole work is 8 feet wide on top, and is built of round log stone-filled cribwork.

Work was commenced on October 3rd, 1910, and completed on November 15, 1910.

Tides rise here, spring 7 feet; neap 5 feet.

PORT MOUTON.

At Port Mouton the channel was widened from 100 feet to 150 feet. This work was completed.

PORTER'S LAKE.

Porter's Lake, Halifax county, is a long, narrow strip of fresh water lying nearly north and south, and situated about the middle of Halifax county, or about 15 miles east of the provincial capital. It is about 18 miles in length, from a quarter to half a mile wide and the water being of good depth for almost its entire length, is navigable for vessels of 60 tons to its extreme head. The normal level of the lake is some two or three inches above H.W.O.S.T.

Up to about 1873, the outlet, which is directly into the Atlantic, through a gravel beach about 200 feet wide, was navigable for schooners drawing 6 feet of water and a considerable trade was then done in the lake in the export of lumber, timber, cordwood, farm produce and fish. Since that time, the outlet has been gradually and permanently filling up with accumulations of gravel washed in by southerly and easterly storms.

In order to maintain the outlet, to prevent the road along the margin from being flooded and to admit fish into the lake, there was expended by the department in 1881 to 1898, a total of $2,031.14 in sums of $40 to $100.

In 1901, numerous expenditures had been made on the permanent outlet, described in detail in the departmental report of 1907-08. These expenditures having resulted in but slight, temporary relief, and no permanent improvement, the department in 1900-1, expended the sum of $8,262.44, in beginning the construction of a permanent channel through the neck of land, 2,400 feet wide, separating the main body of the lake from the extreme head of Three Fathom harbour. The total expenditure on this attempt at a permanent outlet has been $23,407.22, the last being $1,484.52 in 1908-09.

In 1908-9, the sum of $106 was expended in reopening the old outlet, and the sum of $596.86 in a new experimental outlet through Half Island beach. This had not

proved a success, owing to the great exposure of the beach, and the filling up of the outlet by sand and gravel after every heavy storm. $1,484.52 was expended in further deepening the permanent outlet.

During the year 1909-10, the sum of $176.09 was expended in opening and keeping open the old outlet.

During the fiscal year 1910-11, the sum of $4,506.39 was expended in widening and deepening the permanent outlet at the head of Three Fathom harbour. The earth has been removed from the Three Fathom harbour end of the work on the west side of the cut, for a distance of about 900 feet. The intention now is to widen the channel to 30 feet at the bottom and to deepen it to a depth of 6 feet below H.W.O.S.T.

Work begun October 31, completed November 30, 1910.

PROSPECT.

Prospect, Halifax county, is a fishing village of about 400 or 500 people, situated on the Atlantic coast, 20 miles west of the city of Halifax. The annual catch, according to the report of the Marine and Fisheries Department, is valued at $14,000, one hundred boats and a hundred and fifty men being engaged in the industry. The harbour is much exposed to seas from the south and southeast.

In 1908-9, the sum of $3,226.98 was expended in the construction of a small breakwater for the protection of the fishing fleet. The work, which is substantially built of crib-work of the usual type, is 120 feet long, 30 feet wide and from 12 to 14 feet high, provided with a break on the seaward side.

During the year 1909-10, the sum of $103.20 was expended in completing the close-sheathing and planking.

During the fiscal year 1910-11, the sum of $3,685.29 was expended in extending the breakwater 80 feet in length. The extension is 30 feet in width and from 12 feet high at the shore end to 14 feet at the outer end, where there is a depth of 4 feet of water; substantially built of stone, filled crib-work with a break of 4 feet high on the seaward side which is sheathed with 5-inch planking.

Work begun September 13, completed December 26, 1910.

RIVER INHABITANTS.

Birch Island, Richmond county, is on the River Inhabitants, about 2 miles from its entrance into Inhabitants harbour on the northern side of the southern entrance to the Strait of Canso.

In order to shorten the distance for fishing boats going from upper points on the river to the fishing grounds or returning therefrom, during 1886-87, the department expended the sum of $500 in opening a channel 1,150 feet in length and 20 feet in width, and to a depth of about 18 inches at low water, through the mud flats, between the western side of Birch Island and the mainland.

The channel kept open for several years but, by degrees, it silted up until it disappeared altogether.

During 1910-11, the sum of $899.63 was expended in reopening the old channel to a depth of two feet below low water, and the excavated material removed from the cut was deposited in the deep channel of the river below.

The work was done the 9th and 30th of July, and between the 22nd of August and the 30th of September, 1910.

Total expenditure to March 31, 1911, is $1,399.63.

RIVER JOHN.

River John, Pictou county, empties into the head of John Bay, on the Northumberland Strait, about 24 miles to the westward of the entrance to Pictou harbour. It has 3 feet at low water or 11 feet at high water over a bar at the entrance and from

3 to 11 feet at low water in a very crooked channel up to the bridge, a distance of nearly a mile. The village is situated on each side of the river near the bridge and about three quarters of a mile from the station of the Oxford and Pictou branch of the Intercolonial railway.

A wharf on the south side of the river immediately below the bridge, undertaken in 1899-1900, and completed in 1901-2, consists of a pile head (bearing-piles creosoted) 60 by 20 feet with a crib-work retaining wall, 60 by 10 feet, at the back of it, and crib-work wingwalls, on either side, 10 feet in width and respectively 78 and 61 feet in length. The area enclosed by the retaining walls and the shore is filled in with clay covered with gravel. The depth at channel face is 9 feet. Spring tides rise 8 feet.

During the fiscal year 1910-11, the sum of $257.96 was expended in renewing the covering of the pile-head and a small quantity of ballast in the retaining walls.

Work was in progress October 5 to 8 and 14 to 20, and January 22 to 29.

Total expenditure to March 31, 1911, including $449.94 paid for land required, $2,931.12.

ROCKLAND.

Rockland, or as it was formerly known, East Ragged Island, is a fishing settlement, situated on the eastern side of the East Ragged harbour, about 4 miles northeast of Lockeport. In the year 1898-99, the department constructed a wharf, which was built of solid round log crib-work, filled with ballast to the under part of the floor, 181 feet in length, 20 feet in width on top, with the exception of the outer end, which was constructed in the shape of an 'L' or a turn, 30 feet in length, and 40 feet in width. In the year 1905-06, the railway between Halifax and Yarmouth was completed, and the station to supply the needs of the people in this vicinity is situated at Fruids Point. The town of Lockeport placed a steam ferry boat on the route between Fruids Point and Lockeport, and in order to accommodate, not only the people of Rockland, but those of Little Harbour and Louis Head, the department extended this wharf a further distance of 100 feet, so as to enable this steam ferry to call there regularly. This extension consists of pile trestle bents, situated 10 feet apart, measured between centres. It is 20 feet wide on top, and had a depth of about 9 feet of water at L.W.O.S.T., at its outer end.

During the last fiscal year, the amount of $203.63 was expended in placing new planking upon the old portion of the wharf. The work was commenced November 8 and was completed November 19, 1910.

Spring tides rise here 7 feet; neap 4.

ROSS FERRY.

Ross Ferry, Victoria county, is on the northern side of Boularderie island, and on the southern shore of the Great Bras d'Or channel, about 13 miles to the westward of its entrance into the Atlantic.

During 1895-6-7, a wharf was built by the department at a point about half a mile to the eastward of the ferry landing. It extends to 12 feet at low water; is 106 feet long and 20 feet wide, with an 'L' on the eastern side of its outer end, 30 by 22 feet, and consists of a shore abutment of stone, 23 feet long, a creosoted timber pile approach, 61 feet long and of crib-work head with creosoted timber substructure, 50 feet long and 22 feet wide. During 1897-98, the wharf was connected with the public road by a road 320 feet in length, including a small bridge.

During 1909-10, the sum of $549.21 was expended in the renewal of floor-stringers, cap-timbers, covering, upper fenders, and in close-sheathing around the outer corners of the crib-work head, and during 1910-11, the sum of $218.57 was expended in the partial reconstruction of the crib-work abutments of the small bridge on the road connecting the wharf with the public road.

The work was commenced on the 7th and completed on the 15th day of November, 1910.

SALMON RIVER.

Salmon River, Digby county is a small stream emptying into the Bay of Fundy, 17 miles north of Yarmouth, 30 miles south of Weymouth, 3½ miles north of the boundary line between the Counties of Digby and Yarmouth, and 4½ miles north of Port Maitland, in the latter county.

The population of the settlement, within a mile either way of the river's mouth, comprises about 500 people, engaged in farming, lumbering, fishing and general trade. The river, though not large, drains a number of large lakes, and is the most important stream in the southern part of Digby county. It empties into the Bay of Fundy through a sand and gravel bar, inside of which there is a sheltered pond, which, with the exception of the bed of the stream, is dry at low water. The pond has been formed into a small tidal harbour by the construction of two separate works, one on either side of the river's mouth.

The southern work, which is the most important, stops the gravel from interfering with the free discharge of the river, and acts as a breakwater and loading wharf for vessels.

The northern work is simply a groyne or gravel pier, built to prevent the undertow from bringing the gravel into the mouth of the river from the north beach, and by confining the outflow to give a better chance to scour.

Both these works were built by the Provincial government and private enterprise.

The first expenditure by this department in connection with these works was in 1874, since which date numerous sums have been expended to maintain and improve the harbour.

(For details *see* annual report of 1907-8.)

In 1910-11, the sum of $500.24 was expended in repairs to the south or main breakwater; the work done consisting of close-piling a length of about 50 feet on the side of the work next the stream, and the repair and partial renewal of the floor of the work, which had undergone some settlement, due to undermining.

Work was begun on the 16th of November and finished on the 23rd of December, 1910.

SAMBRO.

Sambro, Halifax county, situated on the Atlantic coast to the eastward of the county, 16½ miles from Halifax city, is an important fishing station with a population of about 260.

During the fiscal year 1910-11, the sum of $2,216.51 was expended in the construction of a block and span wharf. The work which is completed with the exception of the ell at the outer end, is 180 feet in total length, 20 feet in width and from 8 feet at the shore end to 22 feet in height at the outer end where, at L.W.O.S.T. there is a depth of 11 feet of water.

Work was begun October 14 and completed December 30, 1910.

SAW PIT.

Saw Pit, Lunenburg county, is situated in Lunenburg back harbour, about three quarters of a mile from the town. The wharf was originally a cribwork structure, built by the Provincial government before Confederation for the use and convenience of the inhabitants of the numerous islands and headlands lying to the north and east of Lunenburg peninsula, but since rebuilt in pile-work. Small expenditures have been made from time to time in repairs and renewals. In 1899-1900, the sum of $900 was

expended in rebuilding the work, which is now 89 feet long, 20 feet wide, with an additional length of 7 feet in an inclined slip, and an approach 60 feet long of earth and gravel.

During the year 1909-10, the sum of $50.87 was expended in making temporary repairs, the wharf having been badly broken by ice and in a dangerous condition.

In 1910-11, the sum of $1,508.60 was expended in rebuilding the wharf in block and span. The completed work is 130 feet long, 20 feet wide with a slip 6 feet in width along the north side for the accommodation of boats. The height at the outer end is about 15 feet where there is a depth of water of 5 feet at L.W.O.S.T.

Begun August 24; finished October 26, 1910.

SCOTCH COVE.

Scotch Cove, Victoria county, is an important fishing station in the south-eastern part of Aspy bay, on the north-eastern side of Cape Breton island, and is about three quarters of a mile south from White Point, on the southern side of the entrance to the bay.

During 1908-9, a breakwater, extending to 19 feet at low water, was constructed by the department for the protection of the anchorage and for a landing place for the steamer which, plying between the Sydneys and Cape North, calls at different points along the coast, for and with passengers and freight.

The breakwater is 320 feet in length and, with the exception of the inner end, which is of stone, 16 feet wide on top; it consists of crib-work with creosoted timber sub-structure, from 20 feet wide at the inner end to 30 feet wide at the outer end. The faces of the crib-work are constructed of squared timber, laid open-faced, and the seaward and outer end faces were close-sheathed. A brush mattress, loaded with stone, was placed along its seaward face for a distance of 200 feet from the outer end inwards, to prevent scouring of the sandy bottom.

During 1910-11, the sum of $255.85 was expended in the construction of a warehouse 12 by 20 feet, on a separate crib-work foundation, at the inner end of the breakwater.

The warehouse was commenced on the 20th and was completed on the 28th of October, 1910.

SEASIDE.

Seaside, Inverness county, is on the east side of St. George's bay, near the southern entrance to Port Hood harbour, and about 2 miles west from Port Hood.

The wharf, undertaken in 1895-6 and completed the following year, is 300 feet in length and 20 feet in width on top, of open-faced crib-work, close-fendered at the outer end, and fully ballasted. The sub-structure is of creosoted timber and the superstructure of native timber. In 1904, the outer end was moved by ice from the south, 11 feet out of line, the movement commencing 74 feet inward; subsequently, the outer end face-chambers were filled with concrete up to low water and above that with ordinary ballast. The depth at the outer end at extreme low water is 7 feet. Spring tides rise 4 feet.

In 1909-10, $618.63 was expended; $41.19 in repairs to the covering of the wharf, September 13 to 18, and $577.53 in constructing about 75 per cent of a new road 371 feet in length from the wharf to a point on the road leading from the highway.

During the fiscal year 1910-11, $199.01 was expended in completing the road in progress during 1909-10.

Work was in progress November 2 to 29.

Total expenditure to March 31, 1911, $8,622.99.

SHAG HARBOUR.

Shag Harbour is a scattered village of about 600 inhabitants, situated about 6 miles northwest of Barrington, and about 45 miles southeast of Yarmouth town, During the fiscal year 1899-1900, the department constructed a pile trestle, bent wharf, and during the past fiscal year the department dredged the channel from that wharf to the main channel, but when the scows came to be towed out, it was discovered that the portion of the channel was not navigable at certain times of tides, owing to the existence of rocks, the knowledge of which had been concealed whilst a survey was being made. During the past fiscal year, the sum of $465 was expended in removing these rocks, and a further sum of $300 has been granted for the purpose of completing the work. The work was commenced March 20, and completed March 26, 1911.

Tides rise here the same as at Falls Point, spring 11 feet; neap, 8 feet.

The dredging operations will be continued in the coming fiscal year.

SHELBURNE.

The town of Shelburne is situated at the mouth of the Shelburne river, at the head of Shelburne harbour, which is so well known, that a detailed description is not necessary. In order to afford facilities for larger draft vessels to call at this port, the department decided to construct a deep water wharf. The site chosen for the wharf is at the extreme end of Water street in the town, at what is known as Battery Point, to which a railway siding from the main line of the Halifax and South Western Railway has already been graded; and in fact, since the beginning of work here at this wharf, the Railway Company have laid their track.

On October 12, 1910, a contract for this work was executed with Messrs. F. A. Ronnan and Company and Daniel Stewart, all of Halifax, N.S., which contract is for the amount of $24,790. The work itself, however, was commenced by the contractors, under special authority, from Ottawa, on the 26th of September last, and has been conducted with a fair measure of progress. The timber for the outer portions of this work will soon be at hand now, when no doubt the work will be prosecuted to successful completion before the expiration of the time allotted in the contract. The amount of work done by them consists of a rock bank 480 feet in length, 40 feet in width on top, and from 9 to 10 feet high at the outside end, with the slopes battering to the proportion of 1½ to 1. This approach is practically completed with the exception of about ½ of the inside slope.

This work was commenced on September 26, 1910, and is still in hand. This work when completed will be 966 feet in length, and will consist of 3 parts.

1. The approach, which will be in the usual rock bank form, 480 feet in length, 40 feet in width on top, and about 9 or 10 feet high at its outside end, with its slopes battering to a proportion of 1½ to 1.

2. The rock and span work, 90 feet in length, which will consist of 3 cribs, each 20 feet in length, separated from each other by 2 spans, each 15 feet in length; which cribs will be 40 feet wide and be filled with ballast to a height of 4 feet above H.W. O.S.T.

3. Pile work, which will be 396 feet in length, constructed of pile trestle bents separated from each other longitudinally 9 feet, measured from centre to centre of piles, the width of which will be 40 feet, with the exception of the outside of the seaward 100 feet which will have a width of 70 feet, measured from outside to outside of guard timber. The height of the work at the outside end will be 36 feet, which will correspond to a height of 4 feet above H.W.O.S.T.

Spring tides rise here 6½ feet, and neap 4 feet.

SKINNER'S COVE.

Skinner's Cove, Pictou county, is on the western side of Northumberland Strait about 8 miles east of Cape John, and about 20 miles northwest of the entrance to Pictou harbour. A pond at the head of the cove is separated from the waters of the strait by a beach of sand 250 feet in width

The works at this place, for the protection of a channel through the beach, undertaken in 1905-6, and continued in 1906-7, 1907-8 and 1908-9, include:—A pier, on each side of a channel dredged to 2½ feet at extreme low water, of brush, stone and piles, 344 feet in length and 15 feet in width with a crib-work head, 40 feet in length by 20 feet in width, with creosoted substructure, and an extension inward, 156 feet in length on the west side and 68 feet in length on the east side, of brush and stone 14 feet in width, on top, and 8 feet in height, founded in a trench excavated to 3 feet above the level of extreme low water.

In 1909-10, the sum of $2,822.10 was expended in re-opening the channel and in nearly completing its extension inwards about 400 feet to the pond.

During the fiscal year 1910-11, the sum of $241.28 was expended in renewing the sheathing and brush filling of 25 feet of the inner end of the pile and brush protection work on the western side of the channel.

Work was commenced on the 10th of November and completed on the 26th of that month.

Total expenditure to March 31, 1911, $18,985.42.

SMILEY'S POINT.

Smiley's Point (Port Dufferin), Halifax county, is a village of from 500 to 600 people engaged in fishing, lobster canning and gold mining; situated at the head of Salmon river which empties into the inlet known as Beaver harbour, about 85 miles east from Halifax by high road and about half way between Halifax harbour and Canso.

During the fiscal year 1908-9, the department expended the sum of $452.12 in the purchase of timber for the construction of a breakwater about half a mile below the public wharf known as the Port Dufferin wharf.

In the fiscal year 1910-11, the sum of $2,551.24 was expended in the construction of the breakwater. The completed work is 170 feet long, the shoreward 120 feet in length being 15 feet wide and the outer 50 feet being 20 feet wide, the head of the work varying from 5 feet at the shoreward end to 19 feet at the outer end where, at L.W.O.S.T. there is a depth of 10 feet of water. The work is sheathed on the seaward face and has a break of 3 feet 6 inches in height.

Work begun July 13, completed September 29, 1910.

SOUTH BAR.

South Bar, Cape Breton county, is situated on the southern side of Sydney harbour at the entrance to the south arm about 5 miles from the town of Sydney.

During 1910-11, the sum of $5,000 was authorized for expenditure in the construction of pile, brush and stone breast-works, each 600 feet in length, 10 feet in width on top and 4 feet above H.W. springs.

As the question of transfer to the Crown of land required at site of proposed work had not been settled, no action was taken with regard to the expenditure of the amount authorized.

SOUTH COVE.

South Cove, Victoria county, is a district on the southern shore of St. Patrick's channel, an arm of the Bras d'Or lakes, about 6 miles to the eastward of Little Narrows.

A plan and specification for the construction of a block and span wharf, to be built by day labour, were prepared, and nearly all the materials required for its construction were procured, and out of the amount voted, up to March 31, 1911, the sum of $4,681.94 was expended thereupon.

The proposed wharf will be 195 feet long and 20 feet wide, with an "L" 20 by 20 feet on the eastern side of the outer end, and will extend to 11½ feet at low water. It will consist of blocks and spans, the blocks built of round timber with creosoted timber substructure, and the outer faces of the two outer blocks will be close-sheathed.

SOUTH GUT.

South Gut, Victoria county, is the local name of the southern arm of the head of St. Ann's harbour, at the head of St. Ann's bay, on the eastern coast of the island of Cape Breton.

A wharf was constructed by the department during 1890-1, on the southern side of South Gut, 198 feet in length and 20 feet in width, extending to 6½ feet at low water, and consisting of a shore abutment, 48 feet long and of four 20 foot blocks, built with native round timber, with intervening spans, 17½ feet in length.

During 1902-3, an additional block, 20 by 40 feet, was placed 17 feet from the end of the wharf, and connected with it by a span, increasing the depth at the outer end to 8 feet at low water

During 1903-4, the covering, the cap and the fenders on the original work were renewed, and the approach was graded and gravelled.

During 1910-11, the sum of $117.09 was expended in the construction of a freight shed on the outer end of the wharf, 10 by 16 feet.

The construction of freight shed was commenced on December 21, and was completed December 29, 1910.

SOUTH INGONISH BEACH.

Ingonish bay, Victoria county, is situated on the eastern coast of Cape Breton island, about midway between Sydney harbor and Cape North, and is divided into North and South bays, by Middle Head, a narrow rocky neck of land, over 2 miles in length.

At the head of South bay there is an extensive lake, separated from the sea by a beach through which there formerly existed but a shallow channel.

In 1873, works were undertaken by the department for the improvement of the channel. On their completion in 1876, there was a channel 200 feet in width with a depth of 14 feet at low water and with its northern side protected by a pier 500 feet in length, thus giving vessels access to the lake which has an area of about 400 acres and a great depth, and affords a safe and commodious harbour.

The pier, on which small sums were expended every year from 1876 to 1880 and large amounts in 1881 and 1882, sustained serious damage during easterly gales in 1882, and was subsequently carried away down to below low water.

During 1886-87, a beach protection work, 58 feet in length and 20 feet in width, was constructed on the northern side of the entrance to prevent the sea from cutting away the end of the beach and opening up a new channel between it and the remains of the old breakwater, and during 1894-95, a beach at the back of the protection work was closed with a crib-work block 45 feet in length and 15 feet in width.

During 1910-11, the sum of $1,728.15 was expended in the construction of a crib-work block, 55 feet long and 16 feet wide, in extension inwards, of the beach protection work, and in raising and levelling up the top of the work built in 1886-87.

Work on extension of beach protection was commenced Sept. 19 and continued to September 30; resumed November 1 and was completed November 10, 1910.

SOUTH INGONISH WHARF.

At the head of South bay there is an extensive lake, separated from the sea by a beach, through which there formerly existed but a shallow channel, which has since been widened and deepened by the department, so that vessels and steamers frequenting these waters can now enter at all times of tide.

During 1903, a wharf, 160 feet in length and extending to 16 feet at low water, was constructed near the ferry landing, on the southern side of the harbour, near its entrance. The wharf consists of a shore abutment, and of four crib-work blocks, with intervening spans. The abutment, and the three inner blocks are 16 feet wide, and the outer block which forms the head is 30 feet; all blocks are constructed of round timber, laid open-faced, and the outer block has a creosoted timber substructure, and is close-sheathed on all outer faces.

The sum of $5,000 was voted for expenditure during 1910-11, towards the construction of an extension to the wharf. Plan and specification for the proposed work were prepared and submitted to the department, tenders were called for, and on January 21, 1911, a contract was entered into for its construction, in the sum of $5,100.

The extension is to consist of a span 8 feet wide and 30 feet long, and a crib-work block 24 feet wide on line of wharf and 40 feet long on channel face. The block is to consist of round timber crib-work, creosoted to half tide, fully ballasted and fendered, and its outer faces are to be close-sheathed between the fenders.

SOUTH LAKE, LAKEVALE.

South lake, Lakevale, Antigonish county, is situated on the western side of St. George's bay, about midway between the entrance to Antigonish harbour and Cape George.

It is a large sheet of fresh water separated from the bay by a beach of sand and gravel, about 900 feet in length, 300 feet in width and about 8 feet above the level of high water springs.

During 1907-8-9, the sum of $12,554.26 was expended in cutting a channel through the beach, 40 feet wide at the bottom and to 2 feet below high water, and in the construction of a breakwater, 300 feet long and 20 feet wide, and consisting of ordinary crib-work, to protect the north side of its seaward entrance, and during 1909-10, the sum of $1,199.98 was expended in completing the channel, through the beach, to a depth of 1½ feet below low water springs.

During 1910-11, the sum of $699.99 was expended in the construction of a brush and stone dam, 75 feet long and 12 feet wide on top, at the inner end of the breakwater, to close a breach made there, and in the removal of some 150 cubic yards of sand out of the channel.

The work was commenced on Sept. 5 and continued to Sept. 24; it was resumed on December 21 and completed on December 30, 1910.

Total expenditure at this place to March 31, 1911, is $15,254.23.

SOUTH WALLACE.

Wallace is a settlement situated on Wallace Bay, which runs inland a distance of 11 miles from Malagash Point. The people of this settlement number about 1,000 and are engaged in farming, quarrying, fishing and lumbering.

The village of Wallace is situated on the south side of this bay, whilst on the north side, the settlements of North Wallace, Fox Harbour, and Gulf Shore are located. Prior to confederation, the Nova Scotia Government constructed a small wharf on the north side of this harbour, which wharf has been repaired several times since by this department.

In the year 1897, the department constructed another wharf on the south side of the harbour; a steam ferry was established between these two wharfs, and a channel was dredged between so that the ferry could be operated at all times and tides. This dredging soon filled up, and in the year 1905, the construction of an extension to both of these wharfs to the main harbour channel was begun. The wharf on the south side was extended a length of 223 feet with a width of 20 feet on top, and a height of 14 feet at the outer end. It was constructed of continuous round log, stone-filled cribwork, well fastened and fendered. In the year 1908-9, a small mooring pier was built in order that the ferry, when wind and tide were both against her, would be able to dock her scow in safety. In the winter of 1909-10, the ice in going out of the harbour, went out 'en bloc,' and when it came opposite these wharfs, it turned this mooring pier over into the channel, and an amount of $250 was asked for, in order to replace the pier, and to remove the ballast from the channel.

This pier was 35 feet long, 8 feet wide, and 14 feet high, so that about 100 tons of stone were dumped into the channel, when it was capsized. All this ballast was removed; this pier was put in place again, and three new fenders were placed on the work, besides the rebuilding of the top, 6 feet of the mooring pier, and the re-ballasting of the same.

Tides rise here, spring from 6½ to 7 feet; neap 5 feet.

This work was begun on April 4, and completed on May 16, 1910.

The expenditure for the fiscal year 1910-11, is $202.68.

SPANISH SHIP BAY.

Spanish Ship Bay, Guysboro county, is an arm of Liscombe harbour, the entrance to which is about 8 miles east of the Halifax and Guysboro county line at Ecum Secum.

On August 8, 1908, the sum of $1,800 was authorized for expenditure by contract. March 1, 1909, a contract plan, specification and estimate of cost were forwarded. August 10, 1910 an Order in Council was passed authorizing the purchase of wharf and property from Zebedee Hartling for the sum of $420; September 22, 1910, the sum of $1,390 was authorized to be expended by day labour, and of this amount the sum of $455.04 was expended during the months of October, November and December in raising, re-ballasting and building approach to wharf. Depth at outer end 8 feet. Spring tides rise 6½ feet.

Work was in progress October 19 to 22, and from November 7 to 30.

Total expenditure on this work up to March 31, 1911, $1,011.26, not including $420 for purchase of property.

SPRY BAY.

Spry Bay, Halifax county, is a thriving fishing and farming settlement of about 1,000 inhabitants, situated about 70 miles from Halifax easterly, and 8 miles west of Sheet Harbour. The harbour is free from ice all the year round.

In 1903-4, the sum of $507.94 was expended in the purchase and delivery of timber preparatory to the construction of a suitable wharf.

In 1904-5, the sum of $1,500 was expended in completing the wharf. The structure is of pilework 200 feet long by 25 feet wide, having an ell at the outer end, giving a face length of 55 feet and a depth of water at L.W.O.S.T. of 11 feet.

During the fiscal year 1910-11, the sum of $199.93 was expended in renewing the covering, fender piling and bracing and in replacing some stone at the outer end of the approach.

Work was begun February 2, finished February 24, 1910.

ST. JOSEPH'S.

St. Joseph's, Inverness county, is a fishing and farming district on the west coast of Cape Breton island, about midway between the harbours of Margaree and Cheticamp and 1½ miles to the southwestward of an excellent boat harbour at Grand Etang.

During 1908-9, the sum of $1,000 was appropriated for expenditure towards the construction of a boat harbour.

In October 1909, a report was submitted in which the cost of the work required, a breakwater to protect a landing beach, was estimated at $11,000.

Of the amount authorized, for expenditure during the fiscal year 1910-11, viz.: $800, the sum of $600 was reserved to pay for property required for a road and a site for the proposed breakwater, and $200.29 was expended in partially constructing the roadway.

Work was in progress December 27, to 29, and March 16, 28, and 30.

ST. MARY'S RIVER.

St. Mary's River, Guysboro county, is a fine stream 65 miles in length, traversing valuable timber lands and discharging into the Atlantic Ocean, 48 miles to the westward of Cape Canso. The depth at extreme low water in a channel dredged, in 1900-1901, to about 14 feet through a bar at the entrance, is now about 12 feet and thence, in a narrow and tortuous channel, to within half a mile of the village of Sherbrooke at the head of tide 8 miles inland, from 18 to 12 feet. Spring tides rise 6 feet.

In 1908-9, improvements of the channel by the removal of a point of reef just within the entrance and of some boulders near the head of navigation, undertaken in 1907-8, were completed with the exception of the removal of some rocks, (broken up boulders) in the channel near the Scotia Milling Co's wharf. During this and the following year, the dredge 'George McKenzie' was engaged in dredging a 10 foot low water channel, 100 feet in width and 1,800 feet in length, through a bar of gravel and boulders between Goldenville wharf and Sherbrooke, and a turning basin at Sherbrooke 300 feet in length by 200 feet in width.

During the fiscal year 1910-11, the sum of $198.01 was expended in breaking up boulders, left near Anderson's wharf at Sherbrooke on completion of dredging in 1909-10, and in removing boulders near the Scotia Lumber Co's wharf below Goldenville.

Work was in progress June 21, to 30.

Total expenditure to March 31, exclusive of dredging, $1,299.76.

SUMMERVILLE.

Summerville, Hants county, is a village of some 400 or 500 people, situated on the right or east bank of the river Avon, about midway between Windsor, the county town of Hants, and the mouth of the river where it empties into the Basin of Minas. It is about 4 miles south of Cheverie. The prosperity of the place is chiefly due to ship building which, up to a few years ago, was carried on with vigor and success, but since the decline in that industry, the inhabitants have turned their attention to farming, to which the district is well adapted, though there is still a good deal of general repairing done in the yards.

The public wharf was built in 1866 by the inhabitants aided by the Provincial Government, its dimensions being 275 feet long, 29 feet wide and 20 feet high at the outer end. Numerous repairs and additions have since been made to the work.

During the fiscal year 1910-11, the sum of $1,200 was expended in making extensive repairs consisting of renewals to planking, floor-stringers, guard-timbers and fenders. The stem of the wharf for the whole length was replanked on new stringers with new guards and new fenders along the north side.

Work begun September 3, completed October 31, 1910

SWIMS POINT AND WEST HEAD.

An appropriation of $1,000 was granted for the purpose of removing rocks in the shape of large boulders and some small stones, from the vicinity of the mooring berths of the public wharfs at Swims Point and West Head. Swims Point is located at Lower Clarks harbour, whilst West Head is from 1½ to 2 miles distant from Clarks harbour proper in the other direction than that of Swims Point. Both wharfs are of considerable local importance, and afford conveniences to a large number of people on Cape Sable island. At Swims Point, 80 tons of large boulders were removed, and at West Head, 160 tons. At West Head, there were also removed about 80 tons of ballast rock which, when the wharf at this place was in course of construction, was washed over from the top of the then unfinished structure by a storm of unusual force locally. These boulders were all lying in from 5 to 11 feet of water at L.W.O.S.T. Both of these wharfs are now absolutely safe to approach, as their mooring berths are clear of all obstructions. This work was commenced on the 1st of July and was completed on the 31st of July, 1910.

Tides rise here, spring 10 feet, and neap 7 feet.

SYDNEY MINES.

The town of Sydney Mines, Cape Breton county, is on the western side of the entrance into Sydney harbour, about 2½ miles to the northward of the town of North Sydney. It contains a population of about 7,000, and is the headquarters of the Nova Scotia Steel and Coal Co's. operation.

Plan and specification for the construction of a wharf at Barrington's cove were prepared and submitted to the department, tenders were called for, and on Nov. 28, 1910, a contract was entered into for its construction, in the sum of $29,900.

The work under contract is 894 feet in length, extending to 12 feet at low water, with an 'L' on the western side of its outer end, 100 feet in length. It is to be 20 feet wide for a distance of 604 feet from its inner end, and 24 feet wide for the remaining distance and for the 'L'. The inner end for a distance of 60 feet shall consist of a road cutting; for a distance of 694 feet it shall be made up of blocks and spans, thence for a distance of 140 feet, or to its outer end, and including the 'L', it shall consist of a continuous crib-work structure. The blocks and the continuous crib-work structure are to be constructed of round timber, creosoted to half tide, and the western end of the 'L', the outer face, and the eastern face, for a distance of 280 feet from the outer end, are to be close-sheathed.

THE WHARVES.

The Wharves, Lunenburg county, is situated at Cherry Hill and is a small fishing harbour situated in an exposed position on the Atlantic coast, about five and a half miles west of Petite Rivière.

During the fiscal year 1910-11, the sum of $632.98 was expended in the purchase of timber for the construction of a work to be carried on next year.

THREE FATHOM HARBOUR.

Three Fathom Harbour, Halifax county, is an irregular shaped inlet of the sea, about one mile in maximum length from north to south by one-quarter to three-quarters of a mile wide, situated about 15 miles to the east of Halifax harbour. The harbour is much frequented and used by fishermen from the contiguous settlements of Seaforth, east and west of Chezzetcook, containing in an aggregate a population of some 500 or 600.

To prevent the sea from breaking through the narrow shingle beach that separates the harbour from the Atlantic, the department in 1878, constructed cribwork

along the crown of the beach. Its original length of 1,050 feet has been extended to 1,085 feet, its height is from 4 to 8 feet and its width 13 feet. It is built of round-log cribwork, fendered and ballasted.

Between the years 1901 and 1909, several expenditures were made by the department in renewals and repairs.

During the fiscal year 1910-11, the sum of $997.76 was expended in taking down and rebuilding 120 feet of the old work. The new portion is 14 feet in width and of an average height of 5½ feet, substantially built of stone-filled cribwork, sheathed on its outer face and planked with 3-inch planking. Repairs were also made, including the raising of a portion of the work 2½ feet for a length of 50 feet, reballasting and renewing sheathing, fenders, planking, &c.

Work begun September 19, completed November 12, 1910.

TONEY RIVER.

Toney river, Pictou county, is a small stream emptying into the Northumberland Strait about midway between Pictou Harbour and Amet sound.

During the years 1905-6, 1906-7, 1907-8, 1908-9, the sum of $9,381.73 was expended in opening a new channel through a beach obstructing the entrance to the river and in constructing protection works. The protection works constructed on the east and west side were respectively 296 and 236 feet in length and 14 feet in width, except the outer 122 feet on each side which are 20 feet in width. The protection works are 36 feet apart and are each 10 feet in height, from 1½ feet below to 8½ feet above extreme low water. The depth at extreme low water, in the channel, between the piers, is about 1½ feet. Spring tides rise 6 feet.

During the fiscal year 1910-11, the sum of $1,943.85 was expended in the construction of 50 feet extensions of the protection works on each side.

Work was in progress August 10 to 28, and September 5 to 9.

Total expenditure to March 31, 1911, $11,325.58.

TROUT COVE.

Trout cove, Digby county, is a small indentation about 1,000 feet long and 600 feet deep, on the Bay of Fundy coast of Digby Neck. It is about midway, and has the only breakwater affording shelter to fishing boats, between Digby Gut and Petit Passage, being 18 miles southeast from the former. The settlement at and near the cove, which is called Centreville, has a population of about 300 people engaged in fishing and farming. The fishing fleet comprises about 50 boats of 16 to 18 feet keel, and there are also owned here two schooners of about 30 tons each, which during the season run to and from St. John, Halifax, Yarmouth and Lunenburg, with produce, fish, lumber, flour, &c. There is a factory for the canning of finnan haddies and kippered herring, which is doing a large business. Within a short distance of the cove is excellent fishing ground for cod, haddock, hake, lobster, &c.

A breakwater was begun in 1856 by the inhabitants aided by the Provincial government; the work as then built being 200 feet long and 30 feet wide. In 1876, it was extended by the department a distance of 170 feet.

Since the latter date, the department has made numerous expenditures in repairs, renewals and extensions, aggregating about $20,000.

In 1910-11, the sum of $600.43 was expended in temporary and emergent repairs to the breakwater, the work done consisting of filling a break on the seaward face, near the outer end of the work, which had been made by heavy seas during the previous winter. Between decay, due to age, and the ravages of the limnoria, this work is in a state of advanced dilapidation, indeed it is practically a wreck, and cannot last much longer.

Work was begun on the 16th and finished on the 31st of August, 1910.

TUSKET WEDGE.

Tusket Wedge, Yarmouth county, is the name given to a peninsula, about three miles long, north and south, by three quarters of a mile wide, situated between Goose bay and the mouth of the Tusket river. The settlement on the isthmus and peninsula, 12 miles southeast from the town of Yarmouth, comprises a population of about 2,000 people, engaged in fishing and farming. It was incorporated in 1909, under the name of Wedge Port.

A public wharf was begun about the year 1879, by the Provincial government, and finished by the Department of Public Works in 1884, at a cost of $850. It was a pile structure, 324 feet long, 30 feet wide and 13 feet high at the outer end. As spring tides rise 13 feet (neaps 10 feet) the mud flats are bare at low tide as far out as the channel, or for about 340 feet beyond the end of the wharf, which, in consequence, is of very little use and at this date is in an advanced state of decay.

In 1910-11, the department expended the sum of $6,001.28 in rebuilding and extending it. Owing to the piles of the old structure being even more decayed than was anticipated, the appropriation did not suffice to complete the work for which a further sum of $3,000 will be required.

Work was begun on the 1st of July and suspended on the 22nd of November, 1910.

UPPER WASHABUCK.

Washabuck, Victoria county, is a district on the southern side of the eastern end of St. Patrick's channel, an arm of the Bras l'Or lakes. It extends about 3½ miles along the shore and 3½ miles on the southern side of the Washabuck inlet or Washabuck river, as it is called; and the latter portion of the district is known as Upper Washabuck.

The sum of $1,800 was voted for expenditure during 1910-11, in the construction of a wharf at Upper Washabuck. The proposed work consists of a pile wharf, 50 feet in length along the channel face and 40 feet in width, with an approach 70 feet long and 20 feet wide, made up of blocks and spans, and all bearing and mooring piles in the wharf are to be of creosoted timber.

Plan and specification for the proposed work were prepared, all the materials required have been delivered, and the approach was constructed, and out of the amount voted, the sum of $1,083.50 was expended on these items, up to the 31st of March, 1910.

The approach was commenced on Dec. 6 and was completed on December 24, 1910.

VOGLERS COVE.

Voglers cove, Lunenburg county, is an important fishing and farming district, situated 15 miles west of the mouth of La Have river, population about 400.

In the year 1909-10, the sum of $1,655.98 was expended in beginning the construction of a pile and crib-work wharf and in the purchase of timber for the completion of the work.

During the fiscal year 1910-11, the sum of $1,111.94 was expended in completing the wharf. The completed work has a total length of 250 feet and a width of 25 feet. The shoreward 50 feet in length is constructed of stone and earth filling; the next 100 feet in length of pile-work. The wharf is from 7 to 21 feet in height and has a depth of 11 feet of water at the outer end at L.W.O.S.T.

Work begun June 13, suspended June 30, resumed November 23 and completed November 26, 1910.

WALTON.

Walton, Hants county, is the mouth of La Tete river and is situated on the south shore of the Basin of Minas, Bay of Fundy, about 14 miles north east of Cheverie, at

the mouth of Avon river. The village of Walton, which is situated at the head of the harbour on its northeast side, has a population of 500. The most important industry of the place is the shipment of gypsum, of which from 5,000 to 10,000 tons annually are shipped to the United States.

For the protection of the harbour, a breakwater was built by the department in 1891, at a cost of $6,170, by contract. The work is 250 feet long, 28 feet high at the outer end and 22 feet wide on top. At the outer end of the work there is a depth of 24 feet of water at high tide.

During the fiscal year 1910-11, the sum of $176.19 was expended in making repairs to the end of the work which was run into and damaged by a tow-boat.

Work begun September 9, completed September 21, 1910.

WEST ARICHAT WHARF.

West Arichat, Richmond county, is a thickly settled district on the south side of Madame Island about 3 miles to the westward of the town of Arichat.

The harbor is easy of access and perfectly safe, being sheltered from the south and west by Creighton Island and by a breakwater between the island and the mainland.

A wharf at Bosdet Point, undertaken in June 1906 and completed in August 1907, consists of a block and span structure, 20 feet in width, extending 88 feet to 15 feet at low water with an "L" on the eastern side of the outer end 28 feet in length and 24 feet in width, and of a cribwork approach over a beach, 300 feet in length and 10 feet in width. The blocks in the wharf are of round timber with creosoted timber substructure, properly ballasted and fendered. The outer faces of the outer block are close-sheathed between the fenders. Spring tides rise 6 feet.

In 1909-10, the sum of $145.42 was expended in the construction of a warehouse 16 by 12 feet with 7 foot posts, on the outer end of the wharf.

During the fiscal year 1910-11, the sum of $48.49 was expended in replacing the roadway and approach to the wharf.

Work was performed in December.

Total expenditure to March 31, 1911, $6,379.92.

WEST BACCARO.

West Baccaro, is about 3 miles west of the village of Port LaTour, and has a population of about 400, practically all of whom are dependent upon the fishing industry for their livelihood. It is one of the roughest spots on our coast, and in the year 1903-4, in order to convert a partial low tide pond into a boat harbour, the Department constructed 1,055 feet in length of cribwork of the beach protection style along two sides of this pond, leaving a channel on the inner end of the pond as a means of entrance thereto, which channel was 225 feet in length, 25 feet in width, and 3 feet deep. The cribwork thus constructed, is 8 feet wide on top and from 4½ to 12 feet high. The work has been most satisfactory, has fully accomplished its purpose, so that the lobster fishing conducted from this point has largely increased in volume since this work was constructed. During the past year, the amount of $1,954.12 was expended in extending this breakwater at its northern end, so that the extension formed a wharf, at which the small steamers, plying along this coast, could call, which would save these people considerable freight, and at times, much of their property. The entrance to this pond was also deepened, so that larger boats, such as are now required by the fishermen along this coast, could utilize this pond for shelter.

The extension, constructed this past fiscal year, is 100 feet in length, and 20 feet in width. It is all solid cribwork of the usual style, and has been very efficiently constructed. The work was commenced on August 11 and was completed on October 29, 1910. A further amount of $1,000 has been asked for in order to extend the work.

Tides rise here, spring 8½; neap 5½ feet.

WEST BERLIN.

West Berlin is a village of about 300 people, all of whom are fishermen, and all of whom conduct a slight amount of farming operations as well. The beach protection, which was built there in 1900, has been of great service to them, but it has from time to time required slight repairs. During the winter of 1909-10, the ice removed a considerable quantity of the old ballast from the top of the work and being thus weakened, the storms in the early spring displaced about 15 fenders and broke down about 60 logs. These were replaced during the past fiscal year, together with sufficient ballast to make them reasonably safe. This work was commenced on the 8th of September, 1910, and completed on the 26th of October, 1910.

The tides rise here, spring 7 feet; neap 5 feet.

WEST CHEZZETCOOK.

West Chezzetcook, Halifax county, is situated on the western side of Chezzetcook inlet which lies about 16 miles east of Halifax. The inlet is from half to three quarters of a mile wide at its mouth and extends 5 miles inland and receives the waters of several small lakes at its head. The population of the village is from 700 to 1,000, located in a scattering manner along the west shores of the inlet.

During the fiscal year 1910-11, the sum of $227.85 was expended in the purchase of timber for the construction of a pile-wharf to be completed next year.

WEST PORT JOLI.

West Port Joli, is situated across Port Joli harbour, about 2½ miles southwest of Port Joli proper, and about 16 miles southwest of Liverpool town. It is used as a fishing station by from 75 to 100 fishermen, who live in the surrounding districts and a breakwater was built there, for the purpose of developing and fostering the fishing industry, as this coast was exposed to all easterly and southeasterly gales.

In the fiscal year 1908-9, about $3,000 was expended in constructing a breakwater which consisted of a rock bank 105 feet in length, 24 feet in width on top, and 9 feet high at the outer end, also 218 feet in length of solid continuous crib-work, fully ballasted, 20 feet on top, with a height of 14 feet at the outer end. This portion of the breakwater was constructed on a ledge of rock, and has about 11 feet of water at low tide on the inside of it. It however, did not provide sufficient shelter and protection for larger boats, which in the past few years the fishermen along this coast have been adopting instead of the low draft skip boats which for the past century have been used, consequently, the sum of $2,000 was placed in the estimates for the extension of this work and during the past fiscal year, the sum of $1,995.28 was expended in extending it.

The extension consists of continuous round logs stone-filled crib-work 120 feet in length, in 10 foot panels, all of which is 20 feet wide, and has an average height of about 19 feet, the outside end being 21 feet high. Besides doing this, the seaward or outside face, about 250 feet in length of the work was sheathed with 7-inch logs.

The fishing business, however, is increasing in this vicinity and a further extension of the work is required immediately.

This work was commenced on August 19, 1910, and was completed on September 30, 1910. Tides rise here, spring 7 feet, neap 4½ feet.

WEST PUBNICO.

West Pubnico, Yarmouth county, is situated 30 miles southwest of Yarmouth; Pubnico harbour is about eight miles long from mouth to head, lying due north and south, and from three-quarters to a mile and a half wide.

On the west side of the harbour and about three miles above its mouth, a wharf was built by the department in 1885-6-7. The work consists of a stone and gravel causeway, 285 feet long, followed by a wharf 230 feet long, of pile bents. The bank is 25 feet wide, by an average height of 5 feet; the wharf is of the same width and from 10 to 14 feet high. At L.W.O.S.T., the mud flats are bare for over 1,000 feet beyond the end of the wharf.

From 1900 to 1906, the department made several expenditures in repairs and renewals and in extending the pile-work a further length of 167 feet.

Spring tides rise about 14 feet.

In 1907-8, the department expended the sum of $700 in digging by hand, at low water, a channel through the mud flats, from the end of the public wharf to the main channel, the dug channel being 780 feet long, 14 feet wide and from one foot to two feet in depth.

In 1910-11, the sum of $199.97 was expended in repairs to the upper part of the wharf, including new stringers, guard timbers and plank, also the sum of $498.97 was expended in deepening and widening the boat channel. The excavated channel is 820 feet long, 12 feet wide and from 1 foot to 2 feet in depth.

Work was begun on the 11th of August and finished on the 4th of October, 1910.

WHITE POINT.

White Point is a fishing settlement about 6 miles west of Liverpool, having a population of from 300 to 400, most of whom are engaged in fishing.

A breakwater was constructed by the department 25 or 30 years ago, but it is not high enough to protect the inside, which is used by the fishermen for a landing, so that during the winter of 1909-10, the storms moved a portion of the beach which lies on the outside of the breakwater, so that three or four hundred tons of small stone were dumped over the breakwater into this landing, thus rendering the landing useless for the fishermen who operate in this vicinity. During the early winter months of 1911, advance authority was received to remove these stones, in order that the landing might be used during the lobster season. The sum of $198.50 was expended, with which about 350 tons of these mixed stones were removed, and the landing was cleared. The work was commenced on March 28, 1910, and completed on April 8, 1910.

Tides rise here, spring 6½ to 7 feet, neap 4½.

WHITEWATER.

Whitewater, King's county, is a small farming and lumbering settlement of about 200 people, situated on the west coast of Minas Basin, about three-quarters of a mile south of Cape Blomidon, and 10 miles northeast of the village of Canning. In 1897-98, the department built a public wharf at a cost of $3,999.08, by day labour. It is 285 feet long, 20 feet wide, with an 'L' at the outer end 35 feet long, where at high water ordinary spring tides, there is a depth of 17 feet of water. The wharf is constructed of block-and-span work, the blocks are solid crib-work, 19 feet long in the stem of the wharf, the spans being 14 feet in clear opening.

Between 1901 and 1905, three expenditures, aggregating $1,536.17, were made in repairs and renewals. Details in report for 1904-05.

In 1910-11, the sum of $993.15 was expended in partially renewing the floor and upper portion of the public wharf. A further sum of about $1,000 will be needed to complete the work.

Spring tides rise 40 feet, neaps 34 feet.

Work was begun on the 5th of July and finished on the 26th of September, 1910.

WHYCOCOMAGH.

Whycocomagh, Inverness county, is a village on the north side of a bay of the same name at the head of St. Patrick's channel, an arm of the Bras d'Or lake.

A private wharf was purchased, with a warehouse and right of way to the public road, in 1897-8, and repaired and extended in 1898-9 and 1899-1900. The wharf was then 228 feet long, including 144 feet of stone work, 21 feet wide, and 84 feet of pile-work, 25 feet wide over 59 feet of its length and 60 feet wide over the outer 24 feet, built over the remains of an old block and span structure.

During 1902-3-4-5 and 1907-8, expenditures were made in slight repairs to the wharf, warehouse and approach.

During the fiscal year 1910-11, the sum of $2,398.11 was expended in nearly completing a triangular pile head, 78 feet long on channel face by 83 feet in line of work, to replace a pile-head which was in a dilapidated condition. Depth along channel face 12½ feet at low lake level.

The work remaining to be done includes the placing of 2,000 feet B.M. of covering, 18 fender piles, 2 mooring piles and 3,000 feet B.M. of chocks.

Work was in progress May 19 to June 20, July 4 to 16, September 14 to 30, and October 1 to 19 and 20.

Total expenditure to March 31, 1911, $8,189.33.

WINDSOR.

Windsor, Hants county, is the county town with a population of 4,500, and is situated at the head of the estuary of the river Avon, on the Dominion Atlantic railway, 46 miles from Halifax. In the neighbourhood are extensive gypsum quarries, of which about 120,000 tons are annually shipped to the United States. Some two or three million feet of lumber B.M. are anually exported by water.

During the fiscal year 1910-11, the sum of $2,538 was expended in the removal of 3,975 yards of mud from the shipping berth at the public wharf. From 3 to 5 feet in depth of mud was removed for the whole length of the wharf, a distance of 450 feet.

The work was done under contract with Thomas A. Mosher, Windsor, Hants county, N.S.

Work begun April 11, 1910, finished June 11, 1910.

WOLFVILLE.

Wolfville, King's county, is a town of about 2,000 inhabitants, situated on the right bank and near the mouth of the Cornwallis river, which issues into the Basin of Minas at its southwest corner. It is an important station on the Dominion Atlantic railway, half way between Annapolis and Halifax, 66 miles from Annapolis and 7 miles east of Kentville, the county town of King's.

In 1900-1, the department, at a cost of $6,360.50, built, by contract, a public wharf on the right bank of the river near its mouth, at a distance of about half a mile from the town. The approach consists of earth-work, an embankment 144 feet in length, 25 feet wide and of an average height of five feet. The wharf itself, which was substantially built of pile-work, was 152 feet long, 36 feet wide, including an inclined slip on the south side, 10 feet wide. It had an ell on the outer end, 82 feet long, giving a total face length on the river channel of 116 feet; the ell was 40 feet wide and from 48 to 49½ feet in height along the face, giving a depth of water, at H.W.O.S.T., of about 46 feet. At L.W.O.S.T. the river channel carries a depth of from 4 to 5 feet of mostly fresh water.

Spring tides rise 48 feet, neaps 40 feet.

Owing to erosion of the side of the channel and bank of the river, and to exceptionally heavy ice, the wharf was almost totally destroyed in the winter of 1903-4.

Between 1903 and 1906, it was rebuilt in substantial cribwork. Full particulars will be found in the report for 1906-7.

In 1910-11, the sum of $217.12 was expended in repairing the steamer bed in front of the public wharf, which had been injured by a blow from a steamer making daily

calls. The work done consists of driving, capping and bracing a bent of six piles, and filling the space underneath with stone and brush.

Work was begun on the 22nd of June and finished on the 29th of July, 1910.

YARMOUTH BAR.

Yarmouth bar, Yarmouth county, lies about N.N.E. and S.S.W. (true) and from the upper wharfs to the mouth is nearly four miles long. At about the middle of its length, and for a distance of about three quarters of a mile, it is protected from the main waters of the Bay of Fundy by a beach of gravel and shingle connecting Cape Fourchu, an island, or rather a peninsula, about a mile long, with Stoney Point, the southern extremity of the mainland forming the western side of the harbour.

It was found, in 1867, that this piece of beach was wearing down under sea action, and that protection was necessary if the harbour was to be maintained. Accordingly, in that year, the Government of Nova Scotia constructed 200 feet of cribwork at Stoney Point. Between 1873 and 1875, the Public Works Department built the remaining 2,800 feet to reach Cape Fourchu. Since 1875 the department has made frequent repairs and renewals, details of which will be found in the annual report of 1905-6 and 1909-10.

In 1910-11, the sum of $300.21 was expended in taking down and rebuilding a length of 50 feet of the beach protection work, which was old, much decayed and threatening to cause a severe breach.

Work was begun on the 24th and finished on the 27th of December, 1910.

In the harbour proper the sum of $213 was expended in removing the remains of the inner lobster rock beacon, a block of cribwork about 16 feet square, which was built a great many years ago on top of a shoal and which was so dilapidated as to be of no further use.

Work was begun on the 20th of December, 1910, and finished the 31st of March, 1911.

The work was done by use of a steam lighter, which was employed for parts of seven days.

Dredging.

An Order in Council was passed on the 17th of May, 1910, authorizing the acceptance of the Dominion Dredging Company's tender for dredging in Yarmouth harbour at 28 cents per cubic yard for class 'C'.

Operations were commenced on the 19th of May, 1910. The company was ordered to cease operations on the 30th of July, 1910, because at that date there had been dredged 206,640 cubic yards at 29 cents (1c. per yard per mile for extra haul) equal to $59,925.60, thus exhausting the 1910-11 vote of $60,000. The company however without authority continued work on the first of August and worked until the 17th, at which date they had removed a further quantity of 47,880 cubic yards. On the 17th, the company yielded to the pressure of the department's orders and suspended operations.

On the 8th of October, 1910, the Chief Engineer authorized the company to continue dredging for one month longer. On the 2nd of November, 1910, this was changed to a further expenditure of $25,300 in lieu of the one month extra time. Work was resumed on the 10th of October, 1910, and again suspended on the 23rd of November, 1910. In this period, 86,310 cubic yards were removed, making a total quantity for the season, between the 19th of May, 1910 and 23rd November, 1910, of 340,830 cubic yards.

Sollow's rock shoal.—On the 24th of June, 1910, a contract, No. 7834, was signed by the Maritime Dredging and Construction Company of St. John, N.B., for the removal of 20,000 cubic yards of Sollow's rock shoal at prices, class 'A' $4.90, class 'B' 90 cents, class 'C' 34½ cents per cubic yard.

Work was begun by Mr. H. B. Cann of Yarmouth for and on behalf of the Maritime Dredging and Construction Company, with a wrecking craft fitted with derrick and diver, on the 25th of July, 1910. Work was suspended on the 31st of August, 1910, because as the contractors alleged, they could not make expenses. During this period there was removed 119 cubic yards class 'A' and 9·22 yards of class 'B', or a total value by contract of $591.40 (average cost to the department, exclusive of inspection, $4.60 per cubic yard. But it cost the contractors very much more than this).

Ledge in channel.—In the month of August, 1910, the sum of $817.50 was expended in removing a small but dangerous ledge or reef of rock recently discovered in the channel nearly opposite the south side of the Dominion Atlantic Railway Company's south wharf. The work was done by H. B. Cann's wrecking outfit in twelve working days. The quantity removed, was 21·61 cubic yards, which figures out $37.83 per yard exclusive of 30 cents for inspection.

PRINCE EDWARD ISLAND.

ANNANDALE.

Annandale pier, Kings county, is situated on the north side of Grand River near its entrance into Boughton bay, and is one of the 'P. E. Island piers' control of which was assumed by the Dominion Government in 1883-4; it is of construction, dimensions, &c., as fully described in departmental report of 1906-7.

During the past fall, some of the covering, &c., being found defective, and settlement having occurred in the filling of the roadway approach that rendered the work unfit for traffic, the necessary repair was effected; work was commenced on the 18th and completed on the 24th October at a cost in all of $75.08.

BEDEQUE.

The dredge *Montague* performed dredging from 4th June to 16th July, removing 28,350 cubic yards mud, clay and stone, at a cost of $3,955.26, or 13·95 cents per cubic yard.

BELFAST.

Belfast pier, Queens county, locally known as 'Halliday's wharf', is situated on the south side of Orwell bay about one mile from the village of Eldon and was constructed by the Provincial government very many years before Confederation to provide shipping facilities for the district, as also a place for the calling of passengers and freight steamer that, for season of navigation, plies between Charlottetown and different points on Orwell bay, &c. Its construction, dimensions, &c., is fully given in departmental report of 1905-6 as well as extension, and improvements that have been made to it at different times by the department since 1883-84 when its control was assumed by the Dominion government.

During the past season, the pier head, 115 feet long was widened 10 feet, and its top over full length and width generally, put in good repair, face further fender-piled, &c.; the roadway approach as well was built up; sidewalk relaid, &c., all of the work being put in good and serviceable condition, the expenditure on which was $1,698.99.

Work commenced on the 15th of August and was completed November 19.

Dredging to provide better approach to the pier, and to form landing berths on its inner side where vessels would have protection from north and westerly winds was as well done by the dredge '*Prince Edward*' that worked at the place from the 26th July to the 25th August, removing in all during the time 7,965 cubic yards of material composed of clay and mud.

BELLE RIVER.

Belle River harbour, Queens county, is situated on the south of the island about 4 miles west from Wood islands, and about 6 miles east of the entrance of Pinette harbour, and was formed originally by the Provincial government at the mouth of Belle river very many years ago as described in departmental report of 1907-8.

The situation being a very exposed one to southerly gales, and some damage having been done to portions of the original works in the fall and winter of 1908-9, the repair of which was effected during the summer and fall of 1909 and the works so placed, as far as possible, in condition. For their further improvement and strengthening, the sum of $2,076.44 was expended during the past summer in the construction of 'finishing blocks' at the outer ends of either of the breakwaters or piers; the blocks being respectively 30 by 30 feet and 20 by 20 feet, also on a 100 foot length of the southern pier, the seaward face was reconstructed and strengthened by fender piling; the work was commenced on the 5th July and completed 5th October.

CARDIGAN BRIDGE.

Cardigan Bridge village, Kings county, is situated at the head of navigation on the Cardigan river, about 6 miles above its entrance into Cardigan bay, and so connected with Straits of Northumberland. The place which is on the line of the Georgetown branch of the P. E. Island railway has a population of about 1,000 inhabitants, and each spring and fall is quite an important shipping point for the surplus products of the surrounding districts, being visited by numbers of schooners of from 50 to 150 tons for cargoes, and by which as well, coal, lumber and much general merchandise are imported, during all of the season of navigation, as well; some shipping is carried on, one steamer, the *Strathlorne,* subsidized by the Nova Scotia government, has also been calling there fortnightly during the past two seasons, and as it was found difficult for this vessel making approach, turning, &c., at all stages of the tide at its calling place, McKenzie's wharf, a short distance below the public road bridge, owing to the narrow and shoal nature of the river, such being reported to the department, the services of the dredge *Prince Edward* were given from the 20th June to 9th July last, during which time the channel for a length of 200 feet approaching the wharf was widened on an average of 50 feet by the removal of 3,600 cubic yards of material composed of stiff clay, and the desired turning facilities, &c., were afforded.

CHAPEL PIER.

Chapel pier, Kings county, is situated on the south side of the Grand river, about 3 miles above its entrance into Boughton bay; it was originally built by the government of P. E. Island, its control being assumed by the Dominion government in 1884, at which time it was in a very dilapidated condition, and has since required considerable expenditure to keep it in passable state for traffic, as described in departmental report of 1908-9, and while during the summer of 1909, as mentioned in the last annual report (1909-10) it had been put in good condition and repair. Some slight damage was done to the roadway approach by the unusually high storm tides of 30th November and 27th December 1909 for the repair of which the sum of $36.50 was expended 23rd to 31st July.

CHARLOTTETOWN.

Charlottetown harbour, Queens county, is reached from the Northumberland Straits through Hillsborough bay; its entrance from latter, between Block-house and Sea-trout points being about ¾ of a mile wide, which width continues, for about a mile, to Canseau and Battery Points, immediately within which at the confluence of the Hillsborough, West, and North rivers, it widens and expands into one of the

finest harbours in America, being accessible for vessels of the largest class, and affording perfect safety for any number or description. Charlottetown, the capital of the province, is situated on the north bank of the Hillsborough river, a short distance within the entrance and where the deepest water approaches the shore; its wharfs however have required being built some 500 to 700 feet long to reach the channel or deep water, so that to render their sides or the different docks of service, improvement by dredging is first required as also afterwards from time to time owing to the sediment that gradually accumulates, on account of both of which, much improvement being desirable at the wharf, the property of Department of Marine and Fisheries, so as to provide sufficient depth, width, &c., for the G.G.S. *Earl Grey,* one of the boats used for the winter service to and from P. E. Island, and approach to the life boat station on the eastern side, deepening of the water was required.

By instructions received from the department, the dredge *Montague* was placed at work on the 11th November and worked up to the 15th December last, removing during this time 13,600 cubic yards of material, composed of hard clay and mud, forming a berth 400 feet long by about 70 feet wide, carrying about 20 feet at low water spring tides; inward of which, up to the life boat station, a further 200 feet, the dredging graded to a depth of 6 feet at L.W.S. tides at its inner end.

CHINA POINT.

China Point pier, Queens county, is situated on the west side of the Orwell river, near its entrance into Orwell bay, and as described in departmental report of 1907-8, is one of the P. E. Island piers, the control of which was assumed by the Dominion government in 1883-84.

During the past season, work being commenced September 14 and completed November 17, the sum of $980.96 was expended in the repair and, for the greater part, reconstruction of the shore abutment and approach; five of the former spans or openings which were solidly filled in, and renewal made of the timbering of the sides of what had been formerly the 'blocks'.

COVE HEAD.

Cove Head harbour, Queens county, is on the north side of the island about midway between Tracadie and Rustico harbours and distant by road about 14 miles directly north from the city of Charlottetown. Within its entrance, which at low water is about 240 feet wide, the harbour or bay has a length of about 4 miles, and a width of from half a mile to a mile, receiving the waters of the Black river and of the Mill, Aulds, and McCallum's creeks. It is navigable over the greater portion of its extent for small vessels and boats, such as can cross the outer bar, where however only about 3½ feet at low water or 7½ feet at high water spring tides is carried, the latter rising here only about at most 4 feet; the harbour proper commences about immediately inward of the entrance, and extends westward between the sand beach and what had been an extensive sand flat, dry at half tide on its western side and was also the main channel formerly, being some 300 to 400 feet wide and carrying 5 feet or better of water at low water springs, while a small channel then existing on the eastern side of the shoal was but quite narrow. Change however having taken place in this, as described in departmental report of 1903-4, works were then constructed, under contract, for the preservation of the original main channel or harbour and on which are situated the fishing stages, lobster factories, &c.

Owing to exposed situation of the work, and having as well scour and settlement to contend with, from nature of its foundation, its repair from time to time can only be expected; such being found advisable during the past summer, general making up of its ballasting, additional fender piling, &c., were effected at a cost of $1,149.12, the

principal work being at the places where former channels had been closed, where much wash out and settlement occurred, the work in some such places having gone bodily down as much as 4 feet.

The work was commenced 11th August and completed 20th October.

GEORGETOWN.

Georgetown harbour, Kings county, is situated on the southwest side of Cardigan bay, about 3 miles within Panmure island, and is one of the finest harbours on the southern part of the Gulf of St. Lawrence, with the exception of Charlottetown, having a depth of water and space sufficient for vessels of the largest class; the rise of the tides however, being only about 5 feet, it is at some disadvantage as compared with Charlottetown but on the other hand, ice does not form generally as early in the fall and breaks up sooner in the spring.

Georgetown, the shiretown of Kings county, is situated on the north shore of the harbour, and is a place of about 1,000 inhabitants; it is the terminus of the Georgetown branch of the P. E. Island railway and, at present, the winter port for the island. Change having been made last year by Marine and Fisheries Department in vessels being used for the winter service between Georgetown and Pictou, N.S., and it being found that the water at the Georgetown wharf was not sufficient for the accommodation of the S.S. *Earl Grey,* dredging was commenced by the dredge *Prince Edward* November 20, 1909, which worked up to the 4th January, 1910, this being as late as the weather conditions would permit. During the time a berth was made 200 feet long by about 55 feet wide, carrying from 17 to 20 feet of water at low tides, some 2,500 cubic yards of clay and hardpan being removed; work was resumed on the 20th April, 1910, and continued up to the 16th June, by which time the berth had been lengthened to 350 feet, widened to 65 feet and to carry from 22 feet at the outer end to 15 feet in depth at the inner end, at low water spring tides; the outer end of the berth for better approach being also widened to 100 feet, such requiring the additional removal of 6,887 cubic yards of clay, hardpan and gravel or a total of 9,387 cubic yards.

GRAHAM'S POND.

Graham's pond is situated on the east coast of the island, about 5 miles southeast of entrance into Cardigan bay, as also about same distance north from entrance to Murray harbour.

The pond has a length of about half a mile, and width of from 600 to 800 feet, and carries in most part, for some distance, a depth of from 5 to 7 feet at ordinary pond level. During 1900, the Marine Department expended a small sum in opening a new channel into the pond, as the then existing one had gradually worked to the south, where it passed over a rocky reef, and could not be used for the entrance of boats. The work however did not prove permanent, and the channel moved back to its original position; an attempt for the improvement of the place was commenced by this department in the fall of 1901, and has since been continued at different times, as described in the departmental reports of 1907-8-9 and while the works, etc., constructed have been for the most part quite inexpensive they have proved of much benefit, affording safe shelter for the fishing boats and lessening the labour of the fishermen who formerly had to haul their boats up above high water mark on the beach.

During the storms of 1st and 27th December, 1909, some damage was done to the older portion of the works (which at both times were completely submerged); a part of the inner portion of the north pier, which was of slight construction and much weakened by the action of the 'teredo' and 'limnoria' was carried away, repair of which was made during the past summer at a cost of $301.77. The work was commenced on 10th September and completed 20th October and has been the means of preserving the usefulness of the harbour.

GRAND RIVER.

Grand River pier, Prince county, is situated on the north side of the Grand or Ellis river, near its mouth where it enters Richmond bay, and about 7 miles northeast from Wellington station on line of the P. E. Island railway.

The pier, which was constructed by the Provincial government during 1880-81-82 at a cost of $4,618.60, having in 1902 become unserviceable and the Local government unwilling to effect repair, was then transferred to the Dominion government, by which it was put in good and useful condition, as described in departmental report 1904-5.

Some damage having occurred to the roadway approach by the high tides and storms in the fall of 1909 and spring of 1910, that rendered passage for teams over it difficult, repairs were effected 9th to 16th August last; the expenditure in all, which was for making up the damaged places with broken stone and gravel being $44.55.

HAGGARTIES.

Haggarties wharf, Queens county, is situated on the south side of the Hillsborough river, about 12 miles east of Charlottetown, and is one of the P. E. Island piers built by the Provincial government, many years before Confederation, the control of which has since been assumed by the Dominion; Haggarties wharf being taken over in 1898, when being much out of repair, it has, as described in departmental report 1907-8, required, about annually, some expenditure to keep it even in passable condition for traffic and, last summer, the reconstruction of its top portion becoming necessary, this was effected and the pier head raised and enlarged by an addition of 40 by 20 feet to its western side; the entire work being generally repaired and strengthened and put in good serviceable condition. The work was carried on from 1st July to October 12 during which time the expenditure made, on labour and materials, was $2,135.88.

HIGGINS SHORE.

Higgins shore pier, Prince county, is situated on Egmont bay about 12 miles north of Cape Egmont, and about 6 miles from Richmond station on the line of the P. E. Island railway; it was built many years before Confederation and one of the P. E. I. piers, the control of which was assumed by the Dominion government in 1884; its description, &c., being fully given in departmental reports of 1908-9-10.

During the past summer, the sum of $48.67 was expended, 1st to 7th September, effecting repairs which consisted in making up the washout that had occurred, in roadway of the pier, with broken stone and gravel.

HURDS POINT.

Hurds Point pier, Prince county, is situated on the southern side of Bedeque or Summerside harbour, about 3 miles south of Summerside, the shiretown of the county, and is a most important shipping point, being the only outlet, by water, for a large, well cultivated and rich agricultural district; it is also the regular calling place for the ferry steamer plying in the harbour, and which makes several trips daily between it and Summerside.

The pier is 500 feet in length and 26 feet in width excepting at the outer end, where for a length of 50 feet it is 65 feet wide; it is one of the P. E. I. piers, the control of which was assumed by the Dominion government in 1883-84, at which time being an old work and much out of repair, it has since required, as mentioned in departmental reports of 1902 and 1908-9, small expenditures to keep it in passable condition for traffic, and will until about entirely reconstructed.

During the past summer, the sum of $17.84 was spent in repair to the landing slip on its southern side, the work being done 20th, 27th and 28th September.

To permit approach to the pier at all stages of the tide, by the ferry steamer and by vessels of 10 foot draft, the channel to it, on a length of 2,130 feet for a width of 60 feet, was cleared out and deepened by the dredge *Montague* that began working on it June 4 and continuing up to the 16th July, during which time 28,350 cubic yards of material composed of mud and clay were removed.

LENNOX ISLAND.

Lennox island, Prince county, which is an Indian reserve, is situated on the north-westerly end of Richmond bay, and on the northern side of P. E. Island; it contains about 1,300 acres, and has at present a population of about 230 persons, all Indians.

There being found to be much need for a landing place on the island, as supplies or shipments made to or from it being effected only at some risk and great inconvenience and labour, at the request of the Department of Indian Affairs an examination was made of the island, a suitable site selected, plan and specification prepared, and contract entered into 30th July last, with Messrs. Ramsay and McNeill for the construction of a wharf 275 feet long, for the bulk sum of $1,950. Materials having been delivered during the past fall and early winter months, the work was commenced on the 20th March from when, up to the end of the fiscal year, good progress was made, the greater part of the outer end of pier head, 30 by 30 feet, being built.

MC PHERSON'S COVE.

McPherson's Cove pier is situated on the south side of Grand river, a short distance inward of what is known as 'Morrison's Beach' and which separates the Grand river from Boughton bay. Construction of the pier was commenced in 1904 being now as described in departmental reports of 1908-9-10.

During the past spring, some slight wash-out having occurred in the broken stone and gravel filling of the roadway approach, repair of this was effected, so as to put the pier in good condition for the fall traffic. Repairs were done 3rd to 7th October.

MIMINIGASH.

Miminigash harbour, Prince county, is situated on the north-east coast of the island, about 15 miles south of North Cape, and 18 miles north from West Point. Works for the formation of a boat harbour were commenced by the Dominion government in 1878 and have since been carried on at different times as described in departmental reports 1899-1900 and 1908-9-10.

During the past season, repair has been effected to the covering of the northern breakwater, where found to be defective; some of the piling on its outer portion, where injured by attacks of the teredo and action of the running ice, also being renewed; beach protection on inner end repaired; plank walk laid down for convenience of the fishermen, &c., the cost of all of which was $356.34. The work commenced September 8 being then carried on up to the 11th October, when for a time discontinued but recommenced November 2 and completed November 14.

For the further improvement of the harbour, a contract was entered into 29th September with Mr. Innis Trail Reid for an extension of 40 feet to the northern work; materials for which having been procured during the early winter, commencement was made with the work 27th February since when it has been in progress, the work done being the below water portion of the block which has been built to about a height of 7 feet.

MINK RIVER.

Mink river, Kings county, also known as 'Murray Harbour North pier' is situated on the north-east side, and near the mouth of the Mink river, where it enters

the southern side of Murray harbour. The pier is 400 feet long consisting of a shore abutment of 200 feet; blocks and spans for 130 feet, all 20 feet in width, and the pier head 70 feet long and 32 feet wide, all being constructed of close-faced timber, being as described in departmental report 1904-5, one of the many structures originally constructed by the local government, before Confederation, and the control of which were assumed 1883-84 by the Dominion, and being at the time, both old and out of repair, have since required some expenditure to keep them in passable condition; such was the case the past year and the sum of $427.90 was spent in renewal of portions of the floor stringers and covering of the outer block; defective wall timbers, guards, fenders, &c., were put in at other places as required, and roadway of the approach made up with broken stone and gravel; the work was commenced 24th August and completed 9th September.

NAUFRAGE POND.

Naufrage pond, Kings county, is situated on the north coast of the island about 20 miles west of East Point, and about 15 miles east of the entrance into St. Peters bay, while by road it is distant about 13 miles directly north from Souris, the eastern terminus of the Souris branch of the P. E. Island railway; description of the pond and as to what has been done by the department for formation of a small boat harbour at the place, is described in departmental report 1909-10.

During the past fall, the sum of $144 was expended in making some further improvement in the newly formed channel by removing some obstructing boulders, and in strengthening, by extra piling, the bridge crossing it, the work was done September 2 to September 29 and October 17 to October 22.

NEW LONDON.

New London harbour, Queens county, is on the north coast of the island, about 10 miles east of entrance into Richmond bay, and 9 miles west of Rustico harbour. It is about 3 miles long, and nearly as wide, receiving the waters of the 'South-west', 'Stanley', 'French', and 'Hope' rivers, all navigable for at least short distances, and having at them wharfs or shipping places from which export is made of the surplus farm produce raised; general merchandise, coal, lumber, &c., imported; the harbour is largely used as a fishing station and a place of refuge, being convenient to some of the best fishing grounds in the Gulf of St. Lawrence.

For improvement of its entrance, which is obstructed by a shifting sand bar, works were commenced by the department in 1878, and have since been extended, &c., from time to time, as described in departmental report of 1908-9.

During the past season, the sum of $768.90 was expended in rebuilding and recovering portions of the outer block, and reballasting the adjoining lengths, respectively 30 and 100 feet long, and which were also strengthened by further fender piling, &c.; the work was commenced 6th July and completed 30th September.

NINE MILE CREEK.

Nine Mile Creek is situated about 6 miles west from the entrance of Charlottetown harbour on the shallow inlet between St. Peters island and the mainland; there is a small wharf originally constructed by the Provincial government, the control of which was assumed in 1884 by the Dominion, as described in departmental report of 1901-2.

The approach to the wharf having of late years become completely filled in, so as to be dry at low water, it has been of little use, if any, for shipping purposes; to obviate which, clearing out of the channel was commenced by the dredge *Prince Edward* 30th August last, and the work carried on up to the 8th December; the channel for 900 feet in length, and to a width of 65 feet being made to carry a depth of 8 feet at low

water or what will be 16½ feet at high water spring tides, which rise at the place 8½ feet, which work and the forming of loading berths, at the side and end of the wharf, and a small basin to permit of the turning of vessels, required the removal of 14,220 cubic yards of material composed of mud, hard clay and shelly rock.

NORTH CARDIGAN.

North Cardigan pier, Kings county, is situated on the north side of the Cardigan river, about 5 miles below Cardigan bridge, is one of the P. E. Island piers, the control of which were assumed in 1883-84 by the Dominion government, since when it has been about rebuilt, by the different repairs and improvements made to it from time to time, as described in departmental report of 1904-5.

During the past summer, 15th to 19th August, the sum of $49.30 was expended in repair of defective planking, making up settlement in filling of the roadway approach, &c.

PORT HILL.

Port Hill, Prince county, is a settlement, near the northwestern side of Richmond bay, and where at the north end of what is known as the 'Cooper road' is the site selected for construction of the small pier for use in connection with the one, also under contract, under construction on Lennox island, both for general accommodation of the district and as a landing place for the Indians of the reserve on Lennox island.

A contract was entered into August 3 last with Messrs. Ramsay and McNeill, for the bulk sum of $4,554 and commencement of the work was made 15th September but suspended 29th October owing to then weather conditions and awaiting delivery of materials. The work being the construction of the inner 200 feet length or shore abutment, all of the required materials have now been delivered at the site and the work will recommence about April 10.

PORT SELKIRK.

Port Selkirk pier, Queens county, is situated on the south side of the Orwell river, near its entrance into Orwell bay, and distant by water about 20 miles from Charlottetown, to where communication is had twice a week by a passenger and freight steamer which plies there and to other places on Hillsborough bay and vicinity; the pier is the shipping point for a large and rich agricultural district, exporting quantities of general farm produce, and importing coal, lumber, &c., which traffic is carried on in schooners of from 50 to 100 tons.

The pier, originally built by the Provincial government before Confederation, is in the form of a 'T' consisting of pier-head 230 feet long and 35 feet wide, fronting on the edge of the channel, and an approach 250 feet long by 23 feet wide; all of the work excepting inner part of the approach being composed of a series of blocks and spans, floor-stringered and planked over.

Since its control was assumed by the Dominion government in 1884, at which time it was in very bad condition, expenditure has been required every few years to keep it in a passable condition as described in departmental report of 1899-1900, it being exposed both to action of running ice and ravages of the teredo and limnoria.

During the past season, 12th September to 31st October, the sum of $424.87 was expended in the reconstruction of 100 feet in length of the southern side of the approach, and putting down new plank walk on same, which was as well fender-piled at 10 feet centres, general repair was also made of planking on the pier-head, &c., placing it in serviceable condition.

RED POINT.

Red Point pier, Queens county, is situated on the south-eastern side of the Hillsborough river about 6 miles from Charlottetown, and is one of the P. E. Island piers

control of which were assumed by the Dominion government 1897-98, since when, as described in departmental reports of 1903-6-8, expenditures have required being made for its preservation, it being old and much out of repair when taken over. It is 650 feet long and an average of 21 feet wide, and consists of a shore abutment 310 feet long, and 5 blocks of from 29 to 75 feet long with intervening spans of from 21 to 25 feet wide; the whole of the work being built of close-faced work and filled in with brush and ballast; having clay filling on top forming roadway on the approach and different blocks, the spans and outer end block being floor-stringered and planked over.

During the past summer, the sum of $913 was expended in the renewal of the floor-stringers and planking of different of the spans as found required; replacing of the pile fendering on the faces of the work, where these had been destroyed by the teredo, and making up of the roadway where settlement and wash out had occurred; a 50 feet length on the top portion of the east side of the approach was also rebuilt where it had fallen down through age and decay. The pier, for the time being, is placed in serviceable state.

RUSTICO.

Rustico harbour, Queens county, is on the north side of the island about midway between East Point and North Cape, and is one of its important fishing stations. For improvement of its approach, which is obstructed by a shifting sand bar, the department during 1881-82-83-84, constructed works on either side of the entrance for the purpose of confining the current at ebb tide and thus, by scour, deepen the water, which result to some extent has been obtained; the works which are described in the reports of the department of 1899-1900, and 1908-9, owing to storms and action of the ice but more particularly from age and the ravages of the teredo having latterly become very defective, so much so that in some parts they are impossible of repair. In view of which, tenders having been called for, a contract was entered into 30th August last with Mr. A. Martin for the reconstruction and general repair of the northern breakwater, and adjoining beach protection, work on which latter was commenced about the 1st and carried on up to the 15th September last, since when nothing has been done except in the way of delivery of materials, the contractor not intending to resume construction until after departure of the ice, about beginning of next May.

ST. MARY'S BAY.

St. Mary's bay pier, Kings county, is situated on the south side of St. Mary's bay about 6 miles directly south by water from Georgetown, the shiretown of Kings county, one of the P. E. Island piers, the control of which were assumed by the Dominion in 1884, as described in departmental report of 1899-1900; it is 407 feet long, being, for 310 feet, 21 feet wide, while the outer 97 feet has a width of 29 feet; being an old structure and much out of repair when taken over by the Federal government, it has since required repair from time to time to keep it in fit condition for traffic.

During the past summer, the sum of $40.19 was expended in renewal of defective covering on the pier head, and making up of washout and settlement that had taken place in the roadway approach; the work was done 8th to 18th August.

ST. PETER'S BAY.

St. Peter's bay, Kings county, has an entrance into the Gulf of St. Lawrence about 35 miles west from East Point, and about 25 miles east of Rustico harbour. The bay is of considerable extent, running inland about 9 miles with an average width of three-quarters of a mile, and carrying a depth of from two to three fathoms at low water; the entrance however, like all of the harbours on the north side of the island, being obstructed by a shifting sand bar greatly interfered with its use, excepting for other than the smaller class of fishing vessels and boats not over 5 to 6 feet draft, for

improvement of which condition, works were commenced by the department in 1878, and since have been continued from time to time as described in departmental report of 1909, and by which, from all reports, the water on the bar has been increased fully 2 feet, as well as the place being otherwise benefited.

During the past season, the sum of $1,256.91 was expended in making up the ballasting where its settlement had occurred in the eastern breakwater, which was also strengthened on its outer end by fender piling; general repair was also effected to the western work, part of which was close fender-piled, covering renewed, &c.; the work being commenced on the 12th September and completed on the 24th November.

SOURIS.

Souris harbour, Kings county, is situated on the southern coast of the island about 16 miles south from East Point, and is most important as a harbour of refuge and place of shipment, for both of which it has been rendered available by the breakwater built and maintained by the Dominion government, as described in departmental reports of 1899-1900 and 1908-9.

During the past season, the sum of $6,111.85 was expended in the delivery and placing of a quantity of large sized stone weighing from 1 to 10 tons, for the making up and repair of the stone slope on the seaward side of the breakwater; 1,260 cubic yards of the stone being delivered and placed, this being done between the 25th June and 30th September, the sum mentioned also included the cost and delivery of a quantity of creosoted pine timber, 150 piles, of respectively 20, 25 and 30 feet in length, for the proposed strengthening of the inner face of the work.

SUMMERSIDE.

Summerside harbour, Prince county, on the southern side of the island is its second place in importance for shiping, &c., the town of Summerside, with a population of about 3,500 inhabitants, is also next to Charlottetown in importance as a business centre. It is one of the principal stations on the line of the P. E. Island railway, and during the season of navigation, has daily communication with the mainland at Pointe du Chene, N.B., by steamers of the Charlottetown Steam Navigation Co. connecting with the Intercolonial railway, and so with all parts of Canada and the United States, &c.

For improvement of the channel, both as to direction and depth, dredging at different times has been done by the department, while for protection of the harbour from the southwest winds, a breakwater 3,200 feet long, extending northerly, has been constructed by the government, as described in departmental reports of 1908-9-10.

To further improve the water carried at, and for approach to different of the wharfs in the harbour, the dredge *Montague* was employed for the greater part of the summer of 1910, working: First, April 16 to June 3, and again July 19 to August 3 at the further improving of the approach to the 'Queen's wharf' removing 17,450 cubic yards of material composed of stiff clay and mud; Secondly.—From August 4 to September 1, and from October 1 to November 3 at railway wharf, where the berth of the S.S. *Empress* was widened and deepened on a length of 450 feet to width of about 200 feet, and depth of 18 feet at low water inward of which for a further distance of 550 feet, at the side of the wharf, for a width of 60 feet, it was dredged, grading up from 15 to 10 feet at L.W.S.T.; 26,370 cubic yards of mud and clay being removed; Thirdly.—September 10 to October 1 at Holmans wharf, where 5,740 cubic yards of mud and clay were removed, the work done being the clearing out of berths, 400 feet long west side and 300 feet long east side, about 50 feet wide, carrying 7 to 13 feet at low water; at the end of the wharf, the water was also deepened to 13 feet at low water spring tides.

TIGNISH.

Tignish harbour, Prince county, is on the north-east coast of the island about 8 miles south of North Cape, being situated at the mouth of the Tignish river, a small stream there entering the Gulf of St. Lawrence.

Formation of a harbour was first attempted by the Provincial government in 1868, and the works, then commenced, have since been continued by the Dominion government, which, on the island in 1873, entering Confederation assumed their control, keeping them in repair, further extending them, &c., as described in departmental reports, 1899-1900 and 1908-9-10.

The harbour being found much too small for the large numbers of vessels and boats desiring its use, a contract was entered into, June 4, 1909, with Messrs. J. H. and E. M. Myrick for the sum of $23,952 for its enlargement, but owing to difficulty that time of the season, in procuring the suitable description of timber and other materials, the work was not commenced until 4th March, 1910, since when it was in progress up to the 30th December last, when satisfactorily completed. It consists of the extension of the piers or breakwaters inwardly for a distance of about 650 feet; construction of beach protection works, dyke, &c.; the piers or main portion of the works being built by first driving two rows of piles 11 feet apart centre to centre, the piles in the rows being 10 feet apart; on the outer rows, three walings of 12 by 12 inch and 14 feet long connecting both the walings and the piles in each bent; after which the faces are close-piled, the piles being bolted to each waling; then the whole interior space is filled with alternate layers of brush and ballast and covered with 4 inch planking.

TRACADIE.

Tracadie harbour, Queens county, is situated on the north side of the island about 12 miles east of Rustico harbour, being about midway between it and St. Peter's bay and harbour; by road, the harbour entrance is about 6 miles from Bedford station on the line of the P. E. Island railway, and about 14 miles from Charlottetown, the capital of the province.

Within the entrance, that has a width of about 900 feet, the harbour has a length of about 3 miles, and width of about a mile, over all of which 12 feet or better of water is carried at low water tides, forming what is known as 'Tracadie bay', from which branch Winter Cove, to the westward, Mill Cove to the southward and what are known as 'The Blooming Point Ponds' to the eastward, extending each, about two miles and carrying sufficient water for small boats at high tide. The place is much used as a fishing station and harbour of refuge but, owing to its entrance being obstructed by a shifting sand bar, is only available generally for small vessels and boats, in fact only at times admitting of the latter, although inward and outward of the bar, there is always a good depth of water.

With a view to improving, if possible, this condition, and render the place of better service, a contract was entered into August 24 last, with Mr. Frank D. McDonald, for the sum of $24,546 for the construction of a breakwater 1,000 feet long, to extend from the east side of the entrance; owing to difficulty in procuring of materials so late in the season, it was not found possible making a commencement of the construction, but considerable materials having now been delivered, work is intended being begun shortly after departure of the ice on the coast, likely about 1st of May.

VICTORIA.

Victoria pier, Queens county, is situated at the head of navigation of the Crapaud basin, at Victoria village, which, next to Summerside, is the most important place for shipments of the southern side of the island; the place is about midway between Char-

lottetown and Summerside harbours, and about 11 miles south of Emerald Junction on the line of the P.E.I. railway.

The pier has a length of 468 feet, consisting of shore abutment or approach 286 feet long and 20 feet wide; middle section 143 feet long and 37 feet wide, and the pier-head 57 feet long and 58 feet wide; with the exception of the approach, which was built solid, the work was a series of blocks and spans, floor-stringered and planked over, but excepting outer span, all the others had been filled in at different times. Other expenditures were made by the department since the pier, in 1884, was taken over by the Dominion from the local government.

During the past season, as the covering and floor stringers of the outer span were found to be defective, it was also solidly filled in; general repair as well being effected as found required to all other portions of the pier, which was placed in good and serviceable condition.

Work was commenced 5th September and completed 31st October; the amount expended being $1,133.

WOOD ISLANDS.

Wood Islands (so called), Queens county, are situated about 30 miles from Charlottetown south-easterly, and 15 miles west from Cape Bear, being the most southerly part of P. E. Island. Originally two small islands, they are now connected with the mainland as also together by sand beaches, a sand spit as well, extending out from the shore to within 300 feet of the eastern island. For the formation of a small harbour, at the place, works were commenced in 1859, by the Provincial government, and have since been continued by the Dominion, as described in departmental reports of 1895 and 1908.

During the past season, the sum of $1,414.09 was expended in the reconstruction of the top part of the inner length of 784 feet of the northern breakwater, and replacing planking, fender piling, &c., of the outer 50 feet of the work; some general repair was also made to other parts where found necessary; the work which commenced 20th July was completed 12th October, 1910.

NEW BRUNSWICK.

ANDERSON'S HOLLOW.

At Anderson's Hollow, in Salisbury bay, on the coast of Albert county, there is a breakwater and wharf 570 feet in total length, and generally 25 feet wide on top, built of round cribwork, and sheathed on the weather face.

Spring tides rise 40 feet.

During 1910-11, the covering, which was dangerous to horses hauling lumber to vessels, was patched.

Work was begun 16th May, suspended 6th December, 1910.

The expenditure for the fiscal year 1910-11 was $25.

APPLEBY'S WHARF.

Appleby's wharf, King's county, is situated about a quarter of a mile west of Riverside station, on the I. C. railway. The work was constructed many years ago by the I. C. railway but has not been used by that company for some time; the wharf fell into decay, and not being required by the railway, it was transferred by Order in Council to this department on 10th May, 1911.

The wharf is 150 feet long, extending out into the Kennebacasis river, and 40 feet wide.

To place the wharf in proper condition for shipping purposes, it will be necessary to build a cribwork all around to protect it from running ice. A revival in the lumber trade would justify the expenditure, the estimated amount of which is placed at $2,400.

BATHURST.

Dredging.

The government dredge *Nereus* was at work during the past season between the 27th July and 9th November on the bar outside Bathurst harbour, removing in that time 93,800 cubic yards and making a cut about 750 feet long with an average width of about 150 feet and depth of 23 feet at low water.

The proposed cut across the bar is to be 200 feet wide with a depth of 25 feet at low water or 32 feet at high water ordinary spring tides entailing a total excavation of 1,053,000 cubic yards (*in situ*). It is proposed to continue this depth and width of cut through the harbour to the town of Bathurst.

BAYSIDE.

Bayside is situated on the east side of the St. Croix river, about 4 miles from St. Andrews, and 18 miles from St. Stephen.

Materials were procured during the winter for a new pile wharf, 103·5 feet in total length and 21 feet wide, with a pier-head 41 by 31 feet. The work will be constructed next season.

The expenditure for the fiscal year 1910-11 was $236.67.

BAY DU VIN.

Between the 11th and 23rd July, 8th to 14th August, and the 22nd to 31st August, 1910, repairs were in progress on the Bay du Vin wharf.

The covering of the inner section of the wharf, which was about 10 years old, was much decayed and broken. Five new stringers 28 to 28½ feet long and from 10 by 10 inches to 12 by 12 inches were placed over the spans, and three old stringers were strengthened by bolting 7 by 12 inch planks to their sides. New plank was laid for a length of 290 feet for the full width, 18 feet, and the remainder of the old flooring was repaired. 20,747 feet B.M. of plank was used.

The expenditure on this work was $562.65.

The total expenditure to date has been $10,905.04.

Dredging.

Dredging to the extent of 2,112 cubic yards was performed by agreement with the Eastern Dredging Co., Ltd., between the 29th October and 7th November, 1910, to deepen the berth and approaches to the Bay du Vin wharf. The berth on the westerly side of the pier head was excavated for a length of about 60 feet and width of about 50 feet, to a depth of about 10 feet at low water, and the approaches were dredged over an area of about 140 feet by 60 feet in front of the wharf and berth to about the same depth; increasing the depth in the approach by about 2 feet and in the berth by about 3 to 5 feet.

The expenditure amounted to $766.20.

BELLIVEAU.

During the fiscal year 1910-11, the road to the Belliveau wharf, 484 feet long, was widened from about 12 to 18 feet, ditched and graded. 1½ feet of gravel was placed over the whole length. Two ladders were placed on the wharf and a couple of small holes were filled with gravel.

The work was in progress between the 24th October and the 4th November.

The expenditure was $74.79.

The total expenditure to date has been $3,723.99.

BLACK RIVER.

At Black river, a small cove on the Bay of Fundy, 12 miles east of St. John, where spring tides rise about 25 feet, a breakwater or wharf of square cribwork, 155 feet long, 27 feet wide and 30 feet in extreme height, was built by the department in 1879, for the use of coasting vessels.

During 1910-11, the work of repair was delayed by the shipping of pulp wood from the wharf. Some timber and iron were procured, and repairs will be made next season.

The expenditure for the fiscal year 1910-11 is $329.84.

Dredging.

The Black river is a small stream flowing into Buctouche harbour about one mile from the village of Buctouche.

Dredging was in progress by day labour, between the 7th and 31st March, to cut a small channel through a bar, dry at low water, situated immediately above the bridge near the river mouth. The formation of the bar decreased the fishing in the river, and the cut is intended to give a passage for fish and to enable small boats to ascend the river at low tide.

It was completed on the 11th April and is 8 to 10 feet wide, 4 to 6 feet deep, and has a total length of 920 feet of which about 700 feet was excavated by the close of the fiscal year.

Three mud diggers were used as long as the ice lasted, after which the work was done with long handled shovels.

The expenditure amounted to $475.67.

BUCTOUCHE.

The planking of the lower section of the Buctouche public wharf, laid in 1903-4, being much decayed and dangerous, new 3-inch deals were laid in October and November of 1910 on an area of 138 feet long by 26 feet wide over the old planking. A strip of 3-inch plank 12½ feet wide was also laid longitudinally for the full length 119 feet, of the approach from the street, and the interior of the wharf was surfaced and holes in the old filling were filled with broken stone. The area surfaced with stone is about 280 feet long by 3 to 32 feet wide.

Work was in progress between the 28th October and 5th November.

The expenditure for the fiscal year 1910-11 was $399.75.

The total expenditure to date has been $15,170.71.

BUCTOUCHE BEACH.

During the fiscal year 1910-11, 283 lineal feet of 6 by 8 inch walings and 45 braces, 12 feet long, were placed on the pile breastwork along the south side of the proposed canal and 72 lineal feet of walings and 37 braces along the north side, and brush and stone were placed in the breastworks. A track, 195 feet long, was built of scantling along the breastwork on the south side on which to haul brush and stone. The breastworks built in 1910, were painted with carbolineum. 800 feet of the picket breastwork, extending northerly along the beach, was refilled with brush weighed with stone.

The two breakwaters, at the outer end of the proposed cut, which consist of pile-work 10½ feet wide, were each extended 25 feet, and 6,000 cubic feet of brush and 40 cubic yards of stone were placed in the sections of the breakwater previously built.

18,000 cubic feet of brush were procured for next season's use.

Work was in progress between the 5th and 25th August; the 29th and 31st August; between the 22nd September and 4th October; the 11th February and 14th March, and on the 31st March.

The expenditure for the fiscal year was $2,543.59.

The total expenditure to date has been $19,758.43.

BURNT CHURCH.

On the 13th and 14th May, 1910, a boulder 3½ by 1·7 by 1·8 feet and several smaller stones were picked up from the berth in front of the Burnt Church wharf. The work was done by the dredge *Peter England,* belonging to Mr. Peter England whose dredge the *Excavator* worked on the evening of the 3rd of May in the endeavour to remove the boulder but without success.

The cost of the work was $50.

The boulder lay on a rock bottom, where there is scarcely a foot of water at low tide under the keel of the daily passenger steamer.

CAMPBELLTON (DEEP WATER WHARFS).

The deep water wharf extension, under contract with Mr. Wm. Glower, dated 28th May, 1908, was completed on the 10th May, 1910. It was begun on the 18th December, 1908. The contract price was $35,475.

The work done during 1910-11, consisted of laying the stringers and covering over 275 feet of the wharf; the covering on the span and 575 lineal feet of cap timbers; trimming most of the fenders and 10 mooring posts; placing two ladders and 10 ring bolts, and painting the tops of the stringers, fenders, cap, &c., with carbolineum.

As completed, the extension is 308 feet long, 37½ feet wide at the east end, 36½ feet at the west end and 36 feet at the centre. It is connected with the old wharf by a span of 18 feet the full width of the wharf. It is about 41 feet high.

Work was also done by day labour at the deep water wharfs between the 14th and 28th May and for seven days in June, when hardwood strips were placed around 14 mooring posts to prevent their being cut into by wire ropes. Three mooring posts were reset and braced and one new post was placed, 10 birch planks were placed over the fenders on the outside face of the old wharf to even off projections. The wharfs were cleaned off and 135 loads of gravel spread over the interior. The shingled roof of the warehouse on the wharf, having an area of about 69,000 square feet, was given two coats of carbolineum.

The expenditure during 1910-11, was $3,844.82.

FERRY SLIP.

In the fire of the 11th July, 1910, which destroyed the town of Campbellton, the covering of the ferry slip was damaged and the faces of the wharfs at the sides of the slip destroyed. Between the 1st and the 3rd of August, the covering of the slip was repaired and fender posts were placed on the wharf at the lower side of the slip for the protection of the ferry boat.

On the 22nd August and 21st September, a quantity of coal and cinders which fell into the slip through the burning of the wharfs was removed by hand dredging.

Total expenditure for 1910-11 was $81.92.

'MARKET' OR 'OLD FERRY' WHARF.

Work was in progress by day labour between the 3rd September and the 11th November on the construction of a pier-head for the Market wharf 75·4 feet wide on the outer face and 70 feet deep.

The new pier-head consists of cribwork 20 feet wide on top, inclosing a space of about 39 feet wide and 53 feet deep which will be filled with rubbish, &c. and gravelled. The pierhead is about 25 feet high at the outer face and 16 feet high next the old work.

During the fiscal year 1910-11, the cribwork was completed, fenders and mooring posts were placed and the stringers and covering laid temporarily. A quantity of ballast and other materials for the completion of the work were procured during the winter.

Along the outer face, there is a depth of 6 to 8 feet at low water or 16 to 18 feet at high water ordinary spring tides.

The expenditure for the fiscal year 1910-11, was $3,937.40.

CAMPBELLTON.

Dredging.

The government dredge *St. Lawrence* was at work in the ship channel of the Restigouche river about 2 to 4 miles below Campbellton during the past season.

Between the 8th June and the 14th July, it worked over shoal spots on 'The Traverse' to give a depth of 16 feet at low water or 26 feet at high water ordinary spring tides in a cut 100 feet wide. About one-half mile of the channel at the Traverse remains with less than the required depth and, over part of this length, soundings taken this winter show a foot more or less depth than found a year ago, indicating that the deposit of silt in the river is very heavy.

Between the 18th July and 10th November, the dredge worked on the Oak Point shoal where there was formerly a least depth of about 10 feet at low water. The material removed at the Oak Point shoal amounted to 86,940 cubic yards. The depth required and width of cut are the same as at the Traverse. The least depth on the Oak Point shoal is now 12 feet at low water ordinary spring tides.

CAPE BALD.

A contract for the construction of a breakwater at Cape Bald was entered into with Mr. E. A. Wallberg on the 20th April, 1909. Work was begun on the 6th June, 1909, and at the end of the fiscal year 1909-10, the cribwork was completed and covering laid for a length of 490 feet and the concrete faces were completed for 394 feet on the north and 483½ feet on the south side.

During 1910-11, the remainder of the approach and the pier head were built, the grading of the roadway approach was completed and the angle between the north side of the approach and the shore was filled with a concrete block containing about 50 cubic yards of large and small stone, extending out about 50 feet from the angle.

The lower concrete forms, around the outer part of the breakwater, are still in place and a number of holes and imperfections in the concrete faces require repair.

As built, the breakwater is 646 feet long on the north or outer face of the approach and 623½ feet on the south face. The outer face of the pierhead is 100·4 feet long, the inner face 72½ feet long. The width of the first 200 feet of the approach is about 16 feet; of the remainder about 21½ feet, and of the pierhead 30½ feet.

The expenditure for the fiscal year 1910-11, including inspection, &c., was $16,039.26.

The total expenditure to date has been $36,511.29.

CAPE TORMENTINE.

During the fiscal year 1910-11, a new slip was cut in the quay face, 8 feet 6 inches; 4 feet deep at the face, and running back 12 feet; 7 face timbers were replaced on the outer faces of the work and 2 hardwood fenders were placed on the north east corner; 12 mooring posts were straightened and painted with carbolineum and a new

post was inserted, and all 13 surrounded with hardwood lagging; the shingled roof of the old freight shed, 24 by 74 feet, and of the new freight shed, 2,800 square feet, were repaired and renailed and doors and windows were repaired, using 34 lights of glass; 227·3 cubic yards of large and 165 of small stone were received for repairing and extending the stone slopes, on the shore section these were repaired at 33 points; stone was deposited at different points along the outer section of the approach, and for the last 120 feet one layer of stone was placed ready to receive the last course; the outer 45 feet was completed and, continuing along the pierhead, 158 feet of the stone protection work was completed. The top layer of stone around the outer end of the breakwater is about 12 feet wide. Over a further 155 feet on the pierhead, the last layer of stone but one was laid.

The work was in progress between the 18th April and 4th June; 20th June-7th September; 12th September and 13th September; 19th September, 17th October; 24th to 29th October, and on the 14th and 15th November.

The expenditure for the fiscal year, including an over-expenditure of $942.70 incurred in 1909-10, was $5,029.47.

The total expenditure to date has been $380,857.20.

CARAQUET.

Dredging.

Dredging was in progress during the past season under contract with the W. J. Poupore Co. Ltd., to deepen the berths to 22 feet at low water or 28 feet at high water ordinary spring tides, and the approach to 19 feet at low water at the deep water wharf where 4,622 cubic yards were removed, also to make a cut 200 feet wide with a least depth of 18 feet, at low water, across a shoal in the harbour channel where 6,455·5 cubic yards were removed.

The dredging at the wharf was in progress between the 12th September and the 8th October. The berth, 300 by 60 feet, at the east side of the pierhead, was completed except a narrow strip along the outer side where the depth is now about 18 to 20 feet, and the dredging of the approach was begun.

Dredging at the shoal, in the harbour, was in progress between the 8th and 28th October where the cut, made in the previous year, was extended about 400 feet, the extension being about 60 feet wide and to the full depth.

The expenditure for the fiscal year, including inspection, was $3,125.75.

CHANCE HARBOUR.

Chance harbour is a cove, one-half mile wide at the mouth, about 350 yards broad at the head, and three-quarters of a mile long. The place is situated 19 miles west of St. John. There are, in the cove, four boats. At Chance harbour there is a small inclined breakwater of square timber, 176 feet long, 23 feet wide and 18 feet high at the outer end.

During 1910-11, the work has been raised 5·6 feet or to within one foot of highest spring tides. Nine hundred and sixty-one cubic yards of ballast were placed in the work.

Work was begun 7th September and completed 28th March, 1911.

The expenditure for the fiscal year 1910-11 is $2,799.58.

CHATHAM.

During the fiscal year 1910-11, a number of broken and decayed planks in the Chatham public wharf were renewed, requiring about 2,000 feet B.M. of 4-inch plank, and 75 lineal feet of new 6 by 12 inch curb was laid. About 53 lineal feet of granite

curb and flag stones were laid to form a walk about 2 feet wide around the rear of the public building on the approach to the wharf. The curbing and flag-stones were taken from the front of the post office where a concrete walk was laid.

The work was in progress on September 20 to 23; 27 and 29; 18th to 20th October, and 25th October.

The expenditure for the fiscal year amounted to $111.35.

The total expenditure to date has been $6,705.54.

CHOCKFISH.

During 1910-11, the breakwaters on the north and south sides of the entrance to the Chockfish river were each extended 96 feet.

They are about 12½ feet in extreme width and are composed of main piles 6 feet centre to centre in two rows with 10 by 12 inch walings and cross ties, and close-piles at the sides to retain the brush and stone filling. A brush fence, 234 feet long, was built along the top of the north breakwater to hold the sand and prevent its being driven into the harbour.

Work was in progress during all September and October except on a few days in each month; on the 2nd and 3rd, and between 7th and 26th January; the 4th to 18th February, and the 29th to 31st March.

The expenditure for the fiscal year was $2,414.85.

CUMMINGS COVE.

Cummings cove, a fishing station, lies at the southwest end of Deer island (a part of the county of Charlotte), and is distant one and a half mile from Fairhaven, and the same distance from Chocolate cove.

A wharf, consisting of a trestle approach 193 feet long; pile work, 60 feet in length, and round cribwork 130 feet long including a pier-head 50 feet square on top, was begun by contract on the 11th of April, 1910. Excepting the pier-head, the work is 23 feet wide on top. The head stands in about 12 feet at low water at ordinary spring tides. Spring tides rise 24 feet.

To prevent the ballast, weighting the trestle work, from washing out, a double row of 6-inch spruce ballast poles were spiked along each side, by day labour, and ballast was levelled on the floors.

Work (contract) was begun 11th April and completed 30th December, 1910.

Work (day labour) was carried from the 13th to the 22nd of March, 1911.

The expenditure for the fiscal year 1910-11, is $15,071.37.

DALHOUSIE.

Dredging.

Dredging was in progress between the 21st June and the 3rd November, 1910, under contract with Messrs. A. and R. Loggie, with the dredge *Gray Loggie.*

(1) In deepening the berths outside the departmental and railway wharfs to 24 feet at low water ordinary spring tides.

(2) In deepening the berth inside the departmental wharf to 18 to 20 feet at low water.

(3) In deepening the berths inside the railway wharf. The presence of rock a few feet below the surface of the mud made it impossible to do much dredging here, and (4) In making a cut with 22 feet at low water from the lower end of the outside berths across a middle ground having only about 13 feet of water at low tide over its crest, out to deep water.

The material removed in this work amounted to 83,977·4 cubic yards of mud. 3 anchors, one steel rail, and 23 sticks of square timber, were also removed.

On the 27th October, the dredge was engaged in removing 77 cubic yards of rock from the reef in the Ferry basin.

The expenditure for the fiscal year, including inspection, was $22,370.45, not including the amounts due for removal of the rock, anchors, &c.

DIPPER HARBOUR.

Dipper harbour is a fishing station on the Bay of Fundy, 20 miles west of St. John.

In 1904-5, a contract was let for the construction of a new breakwater, 335 feet long and 43 feet high at the outer end, intended to replace an old work, and to give shelter to the fishing boats of the neighbourhood.

On the 22nd of December, 1910, a contract was let for the construction of an extension of the breakwater for 100 feet, on a foundation to be made 4 feet below the natural bottom, or 13 feet below low water. The extension will be of close-faced crib-work, 38 feet wide on top, battered on the inside at the rate of one in ten, and on the outside at the rate of one in five.

Navigation not being open by the end of the fiscal year, the timber has not arrived. It is expected that work will be begun in May.

DORCHESTER.

During 1910-11, the bed in front of the Dorchester wharf was levelled by clearing off the mud which accumulated on it during the winter, and by adding brush and mud at the lower end. Old timbers, stones, &c., were removed from beyond the upper end of the bed to give an additional length of 12 feet. The bed was widened 10 feet for a length of about 160 feet at the upper end by placing about 200 hardwood posts, 11 feet long, upright in a trench 3 feet deep, protected by a bank of stone along the outside. The space inside the posts was filled to within 2 feet on the top with brush and stone.

Work was in progress between the 1st and 3rd June; on the 13th August; between the 18th August and 1st September; between the 5th and 12th September; on the 16th September; between the 19th September and the 8th October, and between the 17th and 22nd October.

The expenditure for the fiscal year, including an account for $34.50 for levelling off the bed in December, 1909, was $1,204.25.

The total expenditure to date has been $19,833.43.

Excavation of inside berth.

Between the 12th and 15th and the 19th and 31st December, 1910; the 3rd and 28th January; the 1st and 22nd February, and on the 27th February, 1911, excavation by scrapers and shovels was in progress along the inside of the new wharf at Dorchester to form an additional berth for schooners and steamers.

The area excavated was about 195 feet long by 40 to 42 feet wide, and the general depth reached was about 20 feet below the top of the wharf where previously the depth was from 11 to 17 feet below. The approach to the bed beyond the end of the wharf was also excavated for a length of 25 feet and width of 15 feet.

The expenditure for the fiscal year was $703.77.

DOVER (GAUTREAU VILLAGE).

In April 1910, 70 cubic yards of ballast was hauled and placed in the Gautreau village wharf and the covering was spiked down. Between the 15th and 26th November, work was in progress on a bed for vessels in front of the wharf. The face of

the bed is 42 feet from the face of the pierhead and composed of cribwork 12 feet wide and 40 feet long which was built 5 tiers high. The interior of the bed will be a mud excavation and fill.

The expenditure for the fiscal year amounted to $275.73.

DOVER (STEEVES' LANDING).

During 1910-11, the Steeves' Landing wharf was completed. Twenty-two fenders, 2 ladders and 12 mooring posts were placed, and the whole cap, 315 lineal feet, was laid. The angle between the pierhead and approach on the lower side of the wharf was filled in with a triangular span, 24·8 feet long on the outside supported by five, 10 by 10 inches, stringers. A bed for scows, 26 by 57 feet, was built along the upper side of the wharf, consisting of cribwork 6 feet high at the outside, 26 feet wide, and extending 17 feet into the bed. The remainder of the bed is composed of brush and mud. A bed for vessels, 60 feet long by 24 feet wide, was built of brush, stone, and mud, across the outer end of the wharf. Stone slopes were made on each side of the embankment forming the first section of the wharf, and the top of this section was surfaced with 80 loads of river mud and 6 loads of gravel.

As completed, the wharf consists of a stone, brush, mud and gravel embankment, 48 feet long by 25½ feet in extreme width; a cribwork approach 89 feet long by 14·6 feet wide; a second section 21½ feet long where the width increases from 14·6 to 30·4 feet, and a pierhead about 30·4 feet square; together with the beds as above described.

Work was in progress between the 22nd August and 3rd September and from the 13th September to the 29th October.

The expenditure for the fiscal year 1910-11, including an over-expenditure of $1,002.33 from the year before, amounted to $1,597.87.

The total expenditure to date has been $3,988.54.

DURHAM.

In the spring of 1910, $35 was expended in clearing the Durham wharf of logs, seaweed, &c., which was piled on the wharf to a depth of about 3½ feet on a length of about 450 feet by a storm and unusually high tide in November, 1909.

The total expenditure to date has been $19,466.45.

ESCUMINAC.

During 1910-11, surveys were made and contract plans prepared for a proposed breakwater at Escuminac.

GASPEREAU RIVER.

Dredging.

The dredging of a channel across the bar at the mouth of the Gaspereau river by the government dredge, *Geo. MacKenzie,* was in progress between about the middle of July and the 4th November, when about 25,000 cubic yards of mud, clay, and sand were removed. The cut was extended about 1,575 feet during the season and has a width of from 50 to 100 feet and depth of 6 to 9 feet at low water ordinary spring tides. The range of spring tides is 9 feet.

The deeper water, inside the bar, was reached at the close of the season, but from there to the town of Port Elgin, a distance of about 1½ miles, considerable dredging is necessary.

GRAND ANSE.

During 1910-11, two pieces of hardwood sheathing on the outside face of the breakwater were renewed and parts of the sheathing were rebolted. Three new knees were

replaced inside the wave break. About nine short lengths of stringers were inserted and the covering repaired at different points. Along the inside face, 13 new fenders and 131 lineal feet of new cap timbers were placed and 179 lineal feet of triangular timbers were bolted through the flooring with their tops at the level of the top of the cap to protect the latter, also the inside face timbers which are being torn away from the work by the force of the waves passing over the breakwater and striking the projection of the cap above the floor. The tops of the break, cap, knees, &c., were painted with carbolineum.

The work was in progress between the 5th and 30th September.

The total expenditure to date has been $38,645.28.

GRANDIGUE.

During the fiscal year 1910-11, contract plans were prepared for a proposed wharf at Grandigue, the estimated cost of which is $6,000.

The purchase of a right of way to the site, 1,406 feet long and containing about 1·06 acres, for $125 was authorized.

GREAT SALMON RIVER.

Great Salmon river is a small tidal inlet 8 miles east of Quaco and 43 miles east of St. John. Shipments of lumber are made from this place. Spring tides rise 30 feet. A small harbour, dry at low water, is formed by the projection of a beach from the west side, a narrow opening remaining for an entrance. To keep open this entrance, a pier has been built on the west side. The original work, finished in 1906, was 180 feet long and 18 feet wide on top. An extension of round cribwork, 192 feet long, was completed by contract in 1908.

For the protection of vessels, also for the purpose of keeping the opening scoured, on the 2nd of December, 1910, a contract was let for the construction of an eastern pier of round cribwork, 316 feet long, measured on the centre line, 14 feet wide, measured on the top, for a distance of 55 feet from the shore, then, 20 feet wide for 261 feet.

Work has not yet been begun.

HARVEY BANK.

Harvey Bank, with a population of 600, is situated on the Shepody river, a tidal reach of the estuary of the Petitcodiac. About 40 vessels per annum arrive at that port, taking away hay, butter and other farm products. Spring tides rise 41 feet.

On the 21st December, 1908, a contract was let for the construction of a cribwork extension to Dow's wharf (which had been acquired by the department), consisting of an approach 14 feet long and 20 feet wide, and a pier-head, 40 by 30 feet. During 1909-10, the work was built.

A sum of $850 was authorized to raise the work two feet, in 1910-11.

It is expected that work will go on next season.

HERON ISLAND.

During 1910-11, the pierhead of the Heron island wharf was constructed, 30·7 feet long by 25·3 feet wide and connected with the approach by a span of 19·7 feet by 18 feet wide. 100 feet of the old wharf, forming the approach to the new, was raised by the addition of 10 by 10 inch stringers and covered with 3-inch plank, and 130 lineal feet of cap timbers were placed.

The total length of the wharf is 393·7 feet.

The work was in progress between the 6th and 18th July, and between the 3rd and 15th October; 21st and 29th November, 1910; on eight days in February, and between the 8th and 15th and 20th and 31st March, 1911.

The expenditure for the fiscal year was $730.41.

The total expenditure to date has been $4,724.53.

HERRING COVE.

Herring Cove is situated 11½ miles west of Cape Enragé, forming the western extremity of Salisbury bay, an indentation of the Albert coast of the Bay of Fundy. Spring tides rise 37 feet, neaps, 30 feet.

A breakwater, close-faced on the inside and open-faced on the outside, 215 feet long, 31 feet wide on top, and 43 feet high at the outer end, was built by the department in 1873. The weather face is strongly battered and sheathed. Founded on a reef, under the lee of Matthews' Head, and directed towards Owl's Head, the work, trending towards the land, lies in the direction of the south-west waves and affords some slight protection from undertow to a craft, if beached in the extreme angle of the cove.

During 1910-11, 720 cubic yards of ballast, which had been washed out of the work, were replaced; sheathing on the weather side was repaired; 2,000 feet B.M. of covering were hewn and bolted to the work, and 500 feet of sheathing were prepared but were not placed in position by the end of the fiscal year.

Work was begun 17th October and suspended 31st March, 1911.

The expenditure for the fiscal year 1910-11 is $391.98.

KOUCHIBOUGUAC.

The work for the fiscal year 1910-11, consisted of closing a break in the beach made by a storm of December, 1909. The break was about 300 yards south of the break which was closed in 1909-10. A third break resulted from a storm in 1910.

The dam, built this season, is 520 feet long; about 20 feet wide, and had an extreme depth of about 14 feet. It is composed of piles, 8 feet centre to centre in two rows 6 feet centre to centre, around which are built brush mattresses weighted with stone. 130 piles were driven and about 500 cubic yards of stone were used in the work. One mattress 48 by 18 by 3 feet was destroyed in a storm of the 10th October and rebuilt. In the middle of November, a storm carried off about 2 to 5 feet in depth of mattresses in a total length of about 100 feet.

During the year also, 486 lineal feet of stake and brush breastworks were built along the beach, south of the dam, to collect the drifting sand and preserve the beach, and a length of about 28 feet was built north of the dam.

Work was in progress between the 21st June and the 22nd October.

The expenditure for the fiscal year was $3,581.48.

The total expenditure to date has been $9,894.29.

LAMEQUE.

During the fiscal year 1910-11, 109 cubic yards of ballast were placed in the three blocks built last year as extensions to the pierhead for the support of a warehouse. 9 fenders were placed and a few cross-ties and the stringers and covering were laid.

A combined warehouse and salt shed was built, resting partly on these blocks and partly on the old work. The warehouse is 30·7 by 91·1 feet in outside dimensions, and is 11½ feet high from the wharf floor to the peak. An upper floor is laid 22 feet wide for use in distributing the salt in the space below and to give additional storage room. The sides and roof of the building are shingled. Some slight repairs were also made on the covering of the wharf.

Work was in progress between the 8th July and the 14th October.

The warehouse still requires two cross partitions, stairs, and painting.

The expenditure for the fiscal year was $2,135.25.

The total expenditure to date has been $25,387.98.

LEONARDVILLE.

Leonardville is a fishing station on the eastern side of Deer island (a part of the county of Charlotte), 3 miles from Lords Cove and 2 miles from Chocolate Cove. Thirty sardine boats, from 8 to 12 feet in draught, are owned at Leonardville, in the neighbourhood of which there are 60 families.

On the 13th of September, 1909, a contract was let for the construction of a wharf 303 feet in total length, consisting of a trestle approach 143 feet long; a pile approach 120 feet long, and a cribwork pier-head, 60 by 40 feet.

By the end of 1909-10, the pier-head had been built ten tiers in height, had been sunk in place and ballasted.

During 1910-11, the work was completed.

After the completion of the contract, the construction of landing steps, by day labour, was begun, but not completed by the end of the fiscal year.

Work (contract) was begun 17th January and completed 8th September, 1910. Work (day labour) was carried on from 4th to the 16th of March, 1911.

The expenditure for the fiscal year 1910-11 is $7,001.

LITTLE ALDOUANE.

During 1910-11, a wharf for the accommodation of fishing boats was built extending from the highway bridge at Little Aldouane.

The wharf consists of a span 18 feet long on the centre line and 25½ to 18 feet wide connecting the bridge with a block 21·5 by 18 feet; a span 14·5 feet by 18 feet and a pierhead about 82·7 feet long on the centre line and about 31½ feet wide. The total length of the wharf on the easterly, the longest side, is 139·6 feet. The wharf is built of round timber cribwork, the pier head being covered with ballast, brush, seaweed, and gravel, and the remainder with 10 by 10 inch stringers and 3-inch plank. The outer span is closed, to give greater shelter at the wharf by driving 3-inch plank into the mud and spiking at the upper end to the side of the middle stringers.

The work was in progress between the 22nd July and 21st October, and the 28th to the 31st October.

The expenditure for the fiscal year was $2,794.85.

Dredging.

Dredging was in progress under contract with Mr. G. G. Daigle, between the 25th February and the 1st April, 1911, to make a cut about 300 feet long and 60 feet wide across a sharp bend in the channel of the Little Aldouane river immediately below the public wharf. The depth reached was about 4½ feet at low water or 8½ at high water ordinary spring tides.

A strip about 80 feet long and about 15 feet wide remains to be dredged next the public wharf and also an area about 30 by 30 feet in the basin.

About 2,400 cubic yards of mud were removed.

LOGGIEVILLE.

During 1910-11, $11.25 was expended in replacing worn and broken planks in the Loggieville public wharf, 550 feet B. M. of spruce deals being used.

The total expenditure to date has been $17,508.24.

LORNEVILLE.

Lorneville, formerly Pisarinco Cove, is a well known fishing settlement 10 miles west of St. John, in the county of that name. At this place there are 55 boats.

On the 10th of February, 1909, a contract was let for the construction of a combined breakwater and wharf of solid cribwork, 400 feet long and from 24 to 32 feet in width.

The work was just completed, when on the 14th of December, 1909, during a heavy storm, the pier-head was displaced and settled considerably in the bottom.

During 1910-11, a light has been placed on the damaged work. The only expenditure incurred, during the fiscal year, was for maintaining the light on the wrecked breakwater.

LOWER CARAQUET.

On the 17th March, 1909, a contract was entered with Honoré Duguay for the construction of a wharf at Lower Caraquet. The contract price was $36,500.

Work was begun on the 21st June, 1909, and by the close of the fiscal year, 1909-10, the cribwork was completed and stringers, covering and fenders placed, to the end of the 14th block.

Work was resumed on the 7th May, 1910, and the wharf was completed on the 19th December.

The wharf, as built, is 2,602 feet long and consists of a shore block 550 by 20 feet, 43 blocks 25 by 20 feet, 44 spans 20 by 20 feet, one block 25 by 30 feet, one span 20 by 30 feet and a pierhead 50 by 30 feet; all of round timber in open cribwork with 10 by 12 inch stringers and 3 inch covering, except the outer block which is sheathed on the two sides and outer end to 12½ feet below the top.

As an extra under the contract, the construction of a block (one of 3) to protect the wharf from damage by ice was begun in November, 1910. Work was closed down on the 19th December. It was resumed on the 22nd March, 1911, and by the end of the fiscal year the cribwork of the first ice breaking block was completed and the crib of the second block was built 8 tiers high. These blocks are 20 by 20 feet on top and about 33 by 25 feet at the bottom. They are of cribwork, sheathed all around to 13 feet from the top and have a slope of 15 horizontal in 13 vertical on the side from which the ice fields come.

The expenditure for the fiscal year amounted to $24,619.

The total expenditure to date has been $38,608.90.

LOWER NEWCASTLE.

During 1910-11, a few bolts were procured at a cost of $4.94 for securing and renewing damaged fenders on the Lower Newcastle wharf. The work was not done until after the close of the fiscal year.

The total expenditure to date on the Lower Newcastle wharf has been $5,054.31.

MILLS POINT.

During the fiscal year 1910-11, the sum of $2 was expended in clearing the wharf of seaweed, &c., deposited on it during a storm.

The total expenditure to date has been $20,665.68.

MACES BAY.

Belas Basin, a cove of Maces bay, 25 miles, as the crow flies, west of St. John, but farther by road, is defended from the sea by a beach 1,700 feet long, and is dry at low water.

During 1909-10, the pier-head, a block of round cribwork, 32 feet long and 17½ feet wide, was completed.

During 1910-11, the shore block and two others, intervening between it and the pier-head, were brought up to the level of the upper side of the stringers, and partially ballasted.

Work was begun on 21st of November and suspended 27th March, 1911.

The expenditure for the fiscal year 1910-11, is $383.44.

MIRAMICHI BAY (GRANDOON FLATS).

Dredging was in progress under contract with the Eastern Dredging Co. Ltd., on the Grandoon flats in the inner Miramichi bay with the dredge *Hayward,* between the 22nd July and the 26th October. The least depth over the shoal was, before dredging, about 15½ feet at low water.

The dredging has extended over a length of 8,000 feet and a width of 150 feet for the upper 2,000 feet; about 200 feet for the next 1,000 feet, and about 100 feet for the lower 5,000 feet. The depth reached is about 20 to 22 feet at low water ordinary spring tides, 22 feet at low water or 27 at high water being required. Included in this area are two cuts with a total length of 4,300 feet and width of 50 feet which were made in the previous season.

The material removed by the *Hayward* was 88,482 cubic yards, by the *Invader,* 72,422.83; total for the fiscal year 1910-11, 160,904·8 cubic yards.

The total expenditure under the contract for 1910-11, including inspection, was $18,174.03.

MIRAMICHI BAY (THE HORSE-SHŒ and THE LUMP).

Dredging was in progress under contract with the W. J. Poupore Co. on the Horse-Shœ shoal at the entrance to Miramichi inner bay with the dredge *Prince Ito,* between the 19th July and the 25th October, except on the 18th and 19th, the 24th to 26th and the 29th and 31st August, and on September 1 and 13 when the dredge worked on 'The Lump' in the outer bay.

The depth over 'The Lump' at the beginning of the season was only 16 to 17 feet at low water which was deepened to about 22 feet in a length of about 600 feet and width of about 150 feet. The material removed here amounted to about 16,000 cubic yards.

At the Horse-Shœ, where there was a least depth of about 17 to 18 feet at low water or 22 to 23 feet at high water, the dredging extended over a length of about 4,100 feet and over a width of about 200 to 250 feet. The depth reached, varied from about 20 to 24 feet at low water ordinary spring tides. The material removed amounted to about 118,000 cubic yards.

The expenditure for the fiscal year, including inspection, was $60,798.58.

The total expenditure, for the year 1910-11, at Miramichi, is $79,267.63.

MISCOU.

On the 12th July, 1910, a contract was entered into with Mr. E. R. Reid for the construction of an extension to the Miscou wharf. The contract price is $16,840. The extension will be 900 feet long and composed of 20 blocks, 21 feet square; 21 spans of 20 feet; one block and one span 20 by 30 feet and a pierhead 40 by 30 feet.

Materials were being procured but construction was not begun during the fiscal year.

MIZZENETTE.

In June, 1910, small repairs were made on the Mizzenette wharf where the ice had moved the blocks, widening one span and making a gap of about two feet in the floor. Two new corbels were placed under the span and new flooring in the gap. The gap was rebolted and a new cap timber 8 to 10 feet long placed on each side. About 1,000 feet B. M. of new timber was used.

In addition, a pile of ballast, amounting to about 65 cubic yards, remaining in an abandoned block beyond the end of the pierhead, which was dangerous for boats, was removed; about 50 cubic yards were placed in the wharf and the remainder about the shore end of the approach on the shore.

The expenditure on this work was $50.

The total expenditure to date has been $2,968.15.

MONCTON.

On the 11th November, 1909, a contract was entered into with Messrs. O. and W. Downey for the construction of an extension to the public wharf at Moncton. The contract price was $17,600.

During 1909-10, $6,876.45 was expended for materials supplied for the work.

Work began on the 14th May and the contract was completed on the 11th November, 1910.

As completed, the wharf consists of a main portion 162 feet 3 inches long by 50 feet wide, from the lower end of which an approach 81½ feet long by 20 feet wide runs into the shore. The space between the approach, the main wharf, the old railway or public wharf, and the bank, about 142 feet long by 71 feet wide was filled with marsh mud, ashes and gravel. The wharf has a close-face of square timber along the front; the lower end is of round timber partly open and partly sheathed with 4-inch hardwood plank, and the upper end is contiguous with the public wharf.

In front of the extension and of the public wharf, a bed for vessels, 282 feet long and 50 feet wide, was constructed as part of the contract. The bed is composed of brush and mud with a timber retaining wall 12 feet wide along the front and banks of large and small stone at the ends.

As an extra, under the contract, two layers of tarred felt were placed over the stringers and under the covering at a cost of $100.

Materials were obtained at a cost of $92.21 in March, 1911, for the construction of a small bed for scows.

The expenditure for the fiscal year amounted to $11,398.96.

The total expenditure to date has been $18,966.04.

NEGUAC.

During the fiscal year 1910-11, the Neguac wharf was repaired by renewing a few short lengths of stringers and a number of pieces of the old 4-inch covering and laying a strip of 2-inch covering 12 feet wide and 1,096 feet long over the old covering of the approach. About 30,000 feet B. M. of lumber was used.

Work was in progress between the 17th and 27th August and the 3rd and 14th September.

The expenditure for the fiscal year was $673.12.

The total expenditure to date has been $13,494.73.

NEW MILLS.

On the 18th January, 1911, a contract was entered into with Mr. Warren Taylor for the construction of a wharf at the mouth of the Benjamin river at New Mills. The contract price is $11,480.

Work began on the 28th February and, by the end of the fiscal year, the pierhead and blocks 15 to 17 had been built 17 tiers high; block 14 thirteen tiers high; blocks 10 to 13 nine tiers high, and block 9 six tiers.

The wharf is to be 785 feet long and will consist of an approach 55 feet square on top, and a pierhead 30 feet square on top, all of round timber cribwork sheathed with 4-inch plank.

The expenditure for 1910-11, amounted to $3,479.30.

NORTH-WEST MIRAMICHI (LAWLOR'S SHORE).

Dredging.

Dredging was in progress under agreement with Mr. Peter England between the 13th August and the 1st October with the dredge *Excavator* and between the 22nd August and the 29th September with the dredge *Peter England.* The first removed 8,529·4, the second 5,959 cubic yards, a total of 14,488·4 cubic yards in dredging a cut about 1,600 feet long by 100 feet wide to a depth of about 5 feet at low water or 12 feet at high water ordinary spring tides, across the shoal opposite Lawlor's Shore, about 1½ miles below Redbank or 13 miles above Newcastle.

The *Peter England* also removed a cribwork block and a number of logs and trees from the section of the channel about 1½ to 3 miles below Redbank.

The expenditure for the fiscal year, including inspection, was $5,480.40, or including the payment of $50 to Herbert Matchett described in the next report, $5,530.40.

REDBANK.

Dredging.

Under agreement with Mr. Herbert Matchett, sr., an old sunken block which had lain in the channel for about 35 or 40 years, about 50 feet out from the range of the Redbank wharfs, was removed during August and September, 1910. Propellors had been broken on this block and it was a continual danger to vessels. It was 38 by 10½ feet on the bottom and 6 tiers high and was largely filled with ballast. The ballast and logs completely removed and placed on the shore. The expenditure for this work was $50 included under the authorization for expenditure for dredging at Lawlor's Shore.

NEWCASTLE TO BRIDGETOWN.

Dredging.

Between the 16th July and the 20th August, 1910, dredging was in progress under agreement with the W. J. Poupore Co., Ltd., with the dredge *Prince Louis* on a shoal between Newcastle and Bridgetown on the North-West Miramichi about 1½ miles from either place.

A cut, about 80 feet wide and with 17 to 19 feet at low water or 23 to 25 feet at high water ordinary spring tides, was made through irregular patches where previously the depth was less than 16 feet. The length of the shoal between the 70 foot contours was about 1,600 feet.

The material removed was 18,399·4 cubic yards.

The expenditure including cost of inspection was $5,055.26.

OAK POINT.

During 1910-11, a cribwork 39½ feet long, about 12 feet wide and 6 to 8⅓ feet high was built to close and support the first span of the Oak Point wharf and prevent the waves from washing away the shore of the roadway approach. The cribwork has a close-face of 10 by 12 inch timbers on the outside. A cribwork approach from the beach to the wharf on the lower side was extended 12 feet sloping down to the level of the beach. The outer end of the approach to the shore, on the upper side of the wharf, was filled with ballast and planked, and large stone was placed in the corner between the approach and the shore. The roadway was filled with ballast and gravel where it has been washed out by a storm.

Work was in progress between the 19th and 30th September.

The expenditure for the fiscal year was $266.66.

The total expenditure to date has been $8,679.08.

PETIT ROCHER.

Storms, in 1909, nearly broke through the approach of the Petit Rocher breakwater at its outer end, destroying the stone slope on the outside for a length of about 40 feet.

Repairs were made between the 5th and 9th July and 17th and 27th August, 1910. The remains of the stone slope were levelled off and a cribwork block built in the gap forming a continuation shorewards of the main breakwater which is of cribwork.

The new crib is 41·3 feet long, 14·9 to 9·2 feet wide and about 13 feet high. The outside face is sheathed with 6-inch hardwood.

Four feet in length of the concrete curb along the approach was rebuilt to connect it with the new crib. The stringers and covering of the old work, next the new crib, were repaired and the upper timbers of the new crib and the mooring posts of the breakwater were painted with carbolineum.

The expenditure for the fiscal year was $1,047.45, including a payment of $344.70 which was made to the contractor, Simon McGregor, in settlement of his claim for placing extra fenders around the outside of the breakwater and for moving the ballast inside to permit of screw bolting the fenders through the face timbers.

The total expenditure to date has been $64,887.24.

PINK ROCK.

On the 22nd July, 1909, a contract was entered into with Mr. T. P. Charleson for the construction of an extension to the Pink Rock wharf and a detached breakwater. The contract price was $10,440.

The work was begun on the 25th April, 1910, and completed on the 29th December.

The extension as built, consists of an approach 46·5 feet long and 28·7 feet wide on top, and a pierhead placed at right angles to the approach 74·5 feet long and 28·5 feet wide on top. The breakwater is 99½ long and 28·3 feet wide on top. The breakwater is about 24 feet high, the extension 26 to 27 feet high.

The work is built of round timber, filled with ballast and sheathed on the outer sides and the ends with 4-inch hardwood.

As an extra, under the contract, two spans in the approach 12¼ feet high and 9¼ feet wide were built up with cribwork.

The expenditure during 1910-11, including inspection, was $11,491.62.

The total expenditure to date has been $16,065.64.

POINT DU CHENE.

During 1910-11, the stringers, covering and cap timbers were laid on the Ballast wharf (so-called) and the 6 inch creosoted sheet piling driven outside it, last year, was trimmed and bolted to the cap. Two 6 by 8 inch hardwood walings were placed outside the sheet piling for the whole length, 187 feet, to protect the creosoted material from being worn and damaged by ice and vessels. A length of 133 feet of the outer breakwater where the plank covering was gone, being frequently carried away by storms, was filled with stone and covered with large stone blocks close laid, and additional stone was placed in the small block at the inner end of the outer breakwater and along the outer face of the latter. 332 cubic yards of large and 160 cubic yards of mixed stone were obtained including 100 cubic yards for placing along the outer face of the inner breakwater.

Work was in progress between the 28th June and the 8th November.

The expenditure for the fiscal year was $2,974.12.

The total expenditure to date has been $131,309.81.

Dredging.

Between the 12th July and the 1st December 1910, dredging was in progress under contract with the General Construction and Dredging Co. with the dredge "Bruiser" in the berths at the Intercolonial railway and ballast wharfs and to form a turning basin, outside them, 600 feet in extreme width. The berth for the steamer *Empress,* about 400 feet long, at the Intercolonial Railway wharf, was dredged to a width of 300 feet. The depth of dredging was 17 feet at low water or 21 feet at high water ordinary spring tides.

The material removed amounted to 88,959 cubic yards.

The expenditure, including inspection, was $24,366.58.

POINT SAPIN.

During 1910-11, surveys were made and contract plans prepared for a breakwater at Point Sapin.

The purchase of a right of way to the proposed breakwater for the sum of $50 was authorized.

QUACO.

St. Martins, or Quaco, as the village is indifferently called, situated 32 miles east of St. John, is the terminus of a branch of railway and the seat of several saw mills. Inside low water mark, a pier of close-faced cribwork has been built on each side of the outlet of a moderate stream, in order to give shelter to vessels at high water. The pier on the east side was originally 310 feet long and 30 feet wide, with a head 60 by 39 feet; while the west pier is 302 feet long and 20 feet wide at the top of a slope of one to one. Spring tides rise 30 feet and leave the work dry at two-thirds ebb, receding from them one quarter of a mile at low water.

In 1909-10, the east pier was extended for a distance of 239 feet, and part of the old work, 60 feet in length, which had been damaged by the storm of February, 1908, was re-constructed.

During 1910-11, the shoal, (formed partly by littoral drift and partly by ballast from the old work), inside the east pier, was levelled off, and the berths were graded. Two breaks in the shear-water, that diverts the river into the new channel, were repaired. Brush and gravel were placed along the new work, to prevent the flow of water beneath it.

Work was begun on the 10th October and completed on the 12th November, 1910.

The expenditure for the fiscal year 1910-11 is $320.45.

RICHIBUCTO.

During 1910-11, the repairs and rebuilding of the Richibucto public wharf were continued. A cribwork, 35 feet long and 30 feet wide, was built at the shore end of the approach and one, 47 feet long and 30 feet wide, at the outer end, completing the approach out to the pierhead. The old timbers of the pierhead were removed to about low water level and the faces rebuilt with cribwork and close-piles along the south-westerly side, a length of 112 feet, and along the front face for a length of 91 feet; 210 piles were used. The pierhead was levelled and surfaced with about 1 to 2 feet of ballast and gravel over areas of about 110 by 73 feet and 39 by 13 feet.

Work was in progress between the 14th July and the 30th September.

The expenditure for the fiscal year was $5,252.21.

The total expenditure to date has been $17,471.57.

RICHIBUCTO BEACH.

During 1910-11, surveys were made and contract plans were prepared for an extension of the breakwater from the North beach and for a breakwater from the South beach at the entrance to Richibucto harbour. Tenders were asked for the extension.

RICHIBUCTO CAPE.

During 1910-11, between the 9th and 28th May, on the 14th June and on the 6th and 7th October, small repairs were made on the shore section of the Richibucto Cape breakwater built in the last two seasons. About 92 lineal feet of the stone slope on the south side of the breakwater was repaired; large stones, moved by storm, were replaced about the outer end; the sides of the end block, 20 by 29 feet, were sheathed with 3-inch plank, and a retaining wall of close-faced cribwork, 24 feet long, 10 feet wide and about 8 feet high on the outer face, was built to protect the bank and the shore end of the work on the north side. Bolts, reinforcing steel, ballast poles and ballast were procured and arrangements were made to procure timber for the construction of the pierhead of the breakwater.

The expenditure for the fiscal year was $2,365.51.

The total expenditure to date has been $11,876.96.

REXTON.

During 1910-11, the Rexton public wharf was lengthened by the construction of a block 53 feet long on the river face and 51 feet wide and about 12 to 18 feet in total depth. The block is built of round timber in open cribwork with 10 by 10-inch stringers and 3-inch covering. The approach to the wharf, which was much worn out and dangerous for teams, was repaired. About 4,000 feet B. M. of new 3-inch deals were used to replace parts of the old covering and six cedar logs were flatted and laid beside the old stringers where the latter were decayed.

Work was in progress between the 18th July and the 26th September and between the 14th and 20th October.

The expenditure for the fiscal year was $2,792.54.

The total expenditure to date has been $8,444.63.

SACKVILLE.

During 1910-11, tenders were asked for the construction of a wharf at Sackville, and on the 6th April, 1911, the contract was signed by Messrs. O. and W. Downey.

The wharf will consist of a shore block or approach 150 feet long by 20 feet wide; 2 spans of 20 feet; a block 20 feet square, and a pierhead 350 by 40 feet placed at right angles to the approach. In front of the wharf will be a bed for vessels 400 by 50 feet partly excavated and partly built up with brush, stone and mud, and, in the rear, a bed or berth 200 by 30 feet to be excavated.

ST. ANDREWS.

St. Andrews, in the county of Charlotte, is a terminus of a branch of the Canadian Pacific Railway, and lies, by water, 50 miles west of St. John. The town is situated at the mouth of the St. Croix, on the point of a peninsula stretching into Passamaquoddy Bay, a deep sheltered inlet of the Bay of Fundy. In the summer months, St. Andrews is a favorite watering place frequented by tourists and yachtmen, also by fishermen.

On the 8th of March, 1909, a contract for the extension of the public, or what is known as the market wharf, was signed. This extension consists of a pile approach,

468 feet long, and a pier-head 36 by 70 feet. By the end of last fiscal year, the work was approaching completion.

In April, 1910, the contractor's son did a few days work, but a little iron work, together with some bracing, yet remains to be done. The final estimate has been sent in, necessary deduction being made.

During 1910-11, a floating slip, consisting of a scow, 30 feet by 15, with a truss gangway 43 feet long and 6 feet wide, was built, by day labour, at the pier-head of the new wharf. The moveable slip was put in order, a gallows frame was built, and the ice was kept clear of the floating slip.

Work (contract) was carried on from 4th to 15th April, 1910.

Work (day labour) was begun on 8th August and completed 16th March, 1911.

The expenditure during the fiscal year is $1,727.64.

ST. GEORGE.

St. George, a small but flourishing town, situated at the head of tide on the Magaguadavic river, is chiefly noted for lumbering and for the numerous monumental works established there to manufacture the red granite found in the neighbourhood. On account of the fine water power, due to the great fall immediately at the village, from fresh to tidal water, a pulp mill has been erected.

During 1910-11, the eastern side of the public wharf was taken down and rebuilt for a length of 128 feet; a width of 20 feet, and for an average height of about 19 feet. Steps were erected, and a store house, for freight, was built. The approach to the wharf was repaired, and a derrick, for unloading freight in the summer and raising the steps in the winter, was built.

Work was begun on the 2nd June and completed on the 21st December, 1910.

The expenditure for the fiscal year 1910-11 is $1,503.57.

ST. JOHN HARBOUR.

Foul Ground.

During 1910-11, a crew of men, with a steam hoisting scow and a diver, was employed removing boulders, which obstructed the work of the *Fielding* at the Foul Ground in St. John Harbour. Five hundred and seventy and a half (570½) cubic yards of boulders were taken out, some by submarine blasting.

In March 1911, an independent examination of the boulders at the Foul Ground was made by another diver, before arrangements were concluded for a compressed air drill. It was found that, what were hitherto reported to be very large boulders, were actually small ones, all but three or four, capable of being slung.

Work (removal of boulders) was begun on the 10th June and suspended 5th January 1911.

The expenditure for the fiscal year 1910-11 is $8,516.32.

Fort Dufferin.

Built by the Imperial government to command the western entrance to St. John harbour, stands on high ground, immediately above the end of Negropoint breakwater. In order to preserve, from erosion by the waves, the headland, crowned by the battery, this department began, in 1882, at tide-level, a retaining wall of sheathed cribwork, now 962 feet in length. The work is from 7 to 14 feet wide on top, and about 9 feet in mean height. The crest, for the whole length, is surmounted by a break 2½ feet high. The work is exposed on the one hand to the force of the waves, and on the other hand, to land slips.

During 1910-11, a part of a groyne, damaged by a storm, being a danger to navigation, was taken ashore.

Work was carried on from the 4th to the 7th of February, 1911.

The expenditure during the fiscal year, 1910-11, is $19.50.

Negropoint.

A breakwater, 2,250 feet long, built of large blocks of random stone, extends almost two-thirds of the distance across the west channel, and partially protects St. John harbour. By marine dynometer, the force of the waves has been found to be 4,000 pounds per square foot and upwards; hence the stones of the work are often dislodged by the sea, and frequent repairs are required. These consist principally of large concrete blocks, averaging 30 cubic yards each, made in place. The preparation of a foundation for these blocks consists in removing the large random stone of which the breakwater is generally composed, putting in the false work, and in placing the stones, removed from the foundation, round the concrete, after it has been built.

During 1910-11, sixteen (16) concrete blocks, equal to 775⅓ cubic yards, were made in place; about 50 cubic yards of concrete were placed at the base of blocks to prevent undermining. Fifteen hundred (1,500) barrels of cement, 2,555 barrels of sand and 715 cubic yards of granite were purchased. All this granite was crushed to the size required for making concrete next season. A new gravity concrete mixer; timber to extend the break, and 7,164 pounds of rails to extend the tramway were delivered at the work. Repairs were made to the sheds and scows, and the engine and crusher were overhauled.

Work was begun on 17th June, suspended 31st December, 1910.

The expenditure for the fiscal year, 1910-11, is $18,784.49.

Partridge Island Quarantine Wharf.

Partridge island is the quarantine and lighthouse station at the entrance of St. John harbour.

On the 11th of May, 1910, a contract was let for the construction of a cribwork wharf for quarantine purposes. The work consists of two wings of cribwork, 18 feet wide on top, placed at an angle. The longer side is 123 feet 5 inches, and the shorter, 84 feet 6 inches long. The work is completed.

Work was begun on the 9th of May and completed on the 5th of January, 1911.

The expenditure for the fiscal year, 1910-11, is $13,501.

Dredging.

For the description of St. John harbour see page 95 of the Public Works Report for 1908.

BEACON BAR (St. John County).

This dredging is being carried to 32 feet below low water and, when completed, with future extensions contemplated, will make room for the addition of ten new berths to the west side terminal facilities. The three dredges *Cynthia, Iroquois* and *Beacon Bar,* of the Maritime Dredging & Construction Company, being employed. Dredging was suspended on February 4.

During the fiscal year ending March 31, 1911, 2⅔ cubic yards of Class 1 were removed and 979,259·5 cubic yards of Class 2 and the total expenditure including inspection, amounted to $334,087.39.

HILYARD'S BLOCKS (St. John County).

Owing to the dredging operations being carried on in the harbour, considerable silt is carried and deposited by the water at this point, interfering with the use of these

Blocks. In order to clear the mouth of the drain, the Departmental dredge *New Brunswick* removed 1,245 cubic yards, making a depth of 5 feet at low water. This dredging was commenced on June 28 and completed on July 5.

MARBLE COVE (St. John County).

A depth of 6 feet at low water is required in order to obtain a basin in which to moor the fleet of the St. John Boat Club and to remove a public nuisance in connection with three sewers which empty into this basin. The dredge *New Brunswick* commenced work on June 1, suspended on June 25, resumed work on November 28, and suspended, on account of the ice forming, on December 10. About 18,560 cubic yards were removed during the fiscal year ending March 31, 1911.

SAND POINT, WHARF EXTENSION, (St. John County).

This extension, built by contractor D. C. Clark, is 837 feet long along Rodney slip, 180 feet along No. 6 berth, and 317 feet on the harbour front. This work was commenced in December, 1908, and completed July 29, 1910.

The total expenditure, including inspection, for the fiscal year ending March 31, 1911, amounted to $65,229.18.

SAND POINT (No. 6 Extension and No. 7 Warehouse).

On November 7, Messrs. Scully & Adams commenced the construction of No. 7 warehouse and the extension to No. 6, completing the same on March 11, 1911.

No. 6 extension is 70 feet wide and 204 feet long, and No. 7 warehouse 80 feet wide and 480 feet long.

The total expenditure, including inspection, amounted to $23,221.

SAND POINT (Landing stages).

J. S. Gregory constructed five landing stages, 36 feet by 6 feet 2 inches, together with five shoes, to be used in connection with the Sand Point warehouses. This work was performed between March 6 and 9.

The total expenditure amounted to $412.50.

SAND POINT (FIRE WALL).

On February 4, J. W. Long & Sons commenced the construction of the fire wall between No. 6 and No. 7 warehouses and completed the same on March 15. This wall is built of hollow concrete blocks and is 72 feet long and extends 4 feet above the roof of the warehouse, the footing course is of mass concrete, 16 inches thick, 4 feet 3 inches high and 72 feet long. There are two door openings in the wall, both doors being covered with No. IXX. tin on both sides. One additional bent was built in No. 6 extension to support the roof timbers, it being necessary to sever all connections between the two sheds. A further support was built under the shed floor to support the bent and the foundation of the fire wall.

The total expenditure amounted to $1,492.67.

SAND POINT (HEATING SYSTEM).

The work of installing the heating system in No. 7 warehouse was commenced by contractor Fred. Barr on March 3. The four offices, gear room and two workshops will be heated by a low pressure return system of steam heating, the bulk of which is already installed. A Gurney boiler, capable of 800 square feet of heating surface, is provided. In each of the offices there is installed one radiator and, in the gear

room, a box coil for heating and drying the gear. The system is well provided with expansion joints and check valves. Steam mains are covered with asbestos covering and the returns are protected with double boxing.

The total expenditure for the fiscal year ending March 31, 1911, amounted to $1,080.

A concrete block boiler house, 11 feet 5 inches by 21 feet 5 inches by 11 feet, with reinforced concrete roof, houses the boiler.

SAND POINT, BERTH NO. 7.

A berth, 80 feet wide for a distance of 320 feet and thence splayed to a width of 240 feet at the outer end, is required at this place. The dredging was authorized to 32 feet below low water. Considerable dredging is required at the outer end of the berth in order to get steamers properly berthed on account of the strong tides on both ebb and flood.

During the fiscal year ending March 31, 1911, the dredge *Cynthia*, which commenced work on November 26 and suspended operations on February 4, removed 27,784·9 cubic yards of ordinary spoil, the total expenditure amounting to $10,975.04.

HARBOUR CHANNEL.

The dredge *W. S. Fielding* commenced work in the Harbour channel, St. John, N.B., on the 11th April and continued there until the 24th November; also from the 1st to 21st December, removing in all 460,970 cubic yards boulders, sand and clay at a cost of $84,245.51, or 18·27 cents per cubic yard.

SAND POINT, BERTH NO. 6.

One cut was made along the face of this berth, beginning at the lower corner and continuing up the slip for 200 feet, in order to get a depth of 32 feet below low water. This work was performed by the dredge *Cynthia*, of the Maritime Dredging and Construction Company, on November 17 and 18.

During the fiscal year ending March 31, 1911, 787 cubic yards of ordinary spoil were removed, the total expenditure amounting to $310.87.

WIGGIN'S WHARF (St. John County).

This dredging is for the purpose of obtaining a basin 70 feet long, 40 wide and 5 feet deep, for the boathouse, diving scow and launch of the Public Works Department. A depth of 5 feet below low water is to be obtained. The dredge *Beacon Bar* has removed 1,975 cubic yards of ordinary spoil. Dredging was commenced on June 30 and suspended on July 23.

The total expenditure for the fiscal year ending March 31, 1911, amounted to $987.50.

ST. JOHN RIVER (Upper).

For description of the Upper St. John river see page 97 of the Public Works report for 1908.

ALBERT'S (Madawaska County).

A breakwater, 257 feet long, 7 to 10 feet wide and 5 to 10 feet high, was constructed at this place. Work commenced on June 20, and was completed on June 29.

Total expenditure amounted to $502.57.

ANDOVER TO CARLETON COUNTY BOUNDARY LINE (Victoria County).

The work between Andover and Carleton County boundary line was divided into two portions each in charge of a separate foreman, one working from September 16, to October 1, and expending $148.55, while the other worked from October 3, to October 24, and expended $146.51. Several small boulders were removed and 180 cubic yards were blasted.

The total expenditure amounted to $295.06.

BERUBI (Madawaska County).

Ballast was hauled and placed in the breakwater built last year. Work was commenced on September 19, and completed on September 29.

The total expenditure amounted to $100.25.

BEVERIDGE'S (Victoria County)

A breakwater was constructed of the following dimensions:—210 feet long, 7 feet high, 5 to 18 feet wide for a distance of 80 feet and 18 feet wide for the remaining distance, viz. 130 feet. Work was commenced on September 8 and completed on October 1.

The total expenditure amounted to $300.10.

DOW FLAT (Victoria County).

A breakwater, 55 feet long, 6½ feet high and 18 feet wide, filled with rocks, was constructed. Work was commenced on June 23 and completed on July 13.

The total expenditure amounted to $160.

DYMENT (Victoria County).

A breakwater, 185 feet long, 18 feet wide and 7 feet high, was constructed. Work was commenced on October 12 and completed on October 29.

The total expenditure amounted to $300.01.

GRAND FALLS TO ANDOVER (Victoria County).

Eighty-seven cubic yards of boulders were removed from the river between these two places. Work was commenced on August 8 and completed September 10.

The total expenditure amounted to $199.10.

GRAND FALLS TO EDMUNDSTON (Madawaska County).

A tow-path was cut at different places between St. Basil and Grand Falls, for a distance of about 6½ miles, and two small bridges were built. Work was commenced on July 12 and completed on July 30.

The total expenditure amounted to $199.50.

GRAND RIVER (Madawaska County).

A new channel was cut 9 miles from the mouth of this river, another at 15 miles from the mouth, and obstructions were removed. Work was commenced on October 10, and completed on October 29.

The total expenditure amounted to $201.05.

GUERRETTES (Madawaska County).

The breakwater, built last year, was filled with stone. Work was commenced on December 12 and completed December 21.

The total expenditure amounted to $99.

GREEN RIVER, above 1st lake (Madawaska County).

The channel of the river was cleared for a distance of four miles, and six boulders, measuring about 55 cubic yards, were blasted. Work was commenced on October 14 and completed October 29.

The total expenditure amounted to $145.75.

GREEN RIVER, above 1st Falls (Madawaska County).

This work covered a distance of five miles; 4 large boulders were removed measuring 50 cubic yards, together with several smaller boulders and stumps. Work was commenced on August 22 and completed on August 31.

The total expenditure amounted to $95.57.

LEVASSEUR (Madawaska County).

A breakwater, 50 feet long, 8 feet wide, 3½ feet high and filled with rocks, was constructed. Work was commenced on December 19 and completed on December 22.

The total expenditure amounted to $39.75.

LITTLE RIVER, Grand Falls (Victoria County).

A bend, in this river, about 12 miles from its mouth, was straightened, and boulders were removed for a distance of 3 miles. Work was commenced on October 17 and completed on October 29.

The total expenditure amounted to $152.

LITTLE RIVER, St. Francis (Madawaska County).

Two miles from the mouth of the river, two breakwaters were constructed having the following dimensions, 80 feet long, 10 feet wide and 4 feet deep and situated about 500 feet apart. Continuing up river, for a distance of three miles, rocks, stumps and windfalls were removed from the bed of the river Work was begun on July 5 and completed on July 14.

The total expenditure amounted to $100.06.

LITTLE BRANCH, Green river (Madawaska County).

The channel of this river was cleared for a distance of six miles by the removal of old stumps and boulders. Work was commenced on October 5 and completed on October 12.

The expenditure amounted to $99.50.

LITTLE TOBIQUE (Victoria County).

The channel of this river was cleared through to Nictau lake by the removal of rocks, and the cutting of sand bars. Work was commenced on September 26 and completed on October 6.

The total expenditure amounted to $75.

MADAWASKA RIVER (Madawaska County).

This work was started about 50 feet below Murchie's dam and consisted in cutting a channel through a sand bar, 100 feet long, 15 feet wide with an average depth of 4 feet. Some thirty boulders were also removed from just below the dam. Work was commenced on October 21 and completed on October 27.

The total expenditure amounted to $95.25.

OTTALLIC STREAM (Victoria County).

The blasting and removing of rocks and trees was performed at this place for a distance of six miles. Work was commenced on November 4 and completed on November 24.

The total expenditure amounted to $147.

RIVER DE CHUTE (Victoria County).

A dam was constructed 260 feet long, 20 feet wide, 11 feet high with from 2 to 2½ feet of gravel. An old dam at this place was repaired and gravel added. These dams are situated 15 miles from the mouth of River de Chute, which is a branch of the Wapskehegan river. Work was commenced on March 6 and completed on March 24.

The total expenditure amounted to $600.50.

ST. FRANCIS RIVER (Madawaska County).

Work on this river was commenced, six miles from the mouth, at Frank Jendreau's, a heavy rock was blasted and removed from the channel; 18 miles from the mouth, a channel was cut through a sand bar, 30 feet long, 7 feet wide and 3 feet deep. At Cross lake, the channel was widened 8 feet and cleared of obstructions consisting of small boulders and stumps. Work was commenced on August 22 and completed on August 31.

The total expenditure amounted to $100.12.

ST. JACQUES (Madawaska County).

Two breakwaters were constructed, one 195 feet long, 7 feet wide and 4 feet high; the other 125 feet long, 7 feet wide and 4 feet high. Work was commenced on June 20 and completed on June 29.

The total expenditure amounted to $74.97.

TWEEDDALES (Victoria County).

A breakwater, 160 feet long, 18 feet wide, 7 feet high and well loaded with stone, was constructed. Work was commenced on August 1 and completed on September 9.

The total expenditure amounted to $382.52,

WATER'S (Victoria County).

A breakwater, 185 feet long, 18 feet wide, 7 feet high and partly loaded with stone, was constructed. Work was commenced on October 3 and completed on November 12.

The total expenditure amounted to $297.13.

TOTAL EXPENDITURE, RIVER ST. JOHN AND TRIBUTARIES, UPPER.

The total expenditure incurred on River St John and Tributaries, Upper, for the fiscal year ending March 31, 1911, amounted to $6,010.61.

SURVEY OF RIVER.

Inland navigation extends from Fredericton to Woodstock and is described on page 96 of the Public Works Report for 1908.

FREDERICTON to HAWKSHAW (York County).

This survey was recommenced about 10 miles above Fredericton, both sides of the river being traversed. Hubs have been placed at all angles, for a distance of 25

miles, i. e. to Pokick stream. The following islands have been traversed throughout this stretch:—

Big Mactnaquac,	Wheeler's,	Morehouse,
Little Mactnaquac,	Hog,	Big Coac,
Big Bear,	Long,	Little Coac.
Little Bear,	Whitehead,	

A traverse was made of the large intervals such as Grey's, Joslin's and Davidson's. Soundings have been taken at the following places:—

Chapel Bar,	Ryan Bar,	Tennant Bar.
Bear Island Bar,	Tapley Bar,	

All important connections with the surveys of 1908 and 1909 and that of Mr. C. LeB. Miles' were made.

This survey was recommenced by the Engineer-in-Charge, A. E. Hanson, on June 27, the field work being completed on November 8.

The total expenditure, for the fiscal year ending March 31, 1911, amounted to $4,377.56.

TIDAL NAVIGATION.

For description of River St. John Tidal Navigation, see page 96 of the Public Works Report for 1908.

BARKER'S (Sunbury County).

A quantity of mud and gravel was added to the approach to the high water wharf; was commenced on October 1, 1909, and completed on June 16.

The total expenditure for the fiscal year ending March 31, amounted to $276.74.

BURTON COURT HOUSE (Sunbury County).

This work consisted of placing fenders on the face and lower side of the pierhead of the low water wharf built last fiscal year. An approach was also constructed. Work was commenced on June 15, and completed on July 16.

The total expenditure for the fiscal year ending March 31, 1911, amounted to $559.56.

DAY'S LANDING (Kings County).

The dredge *New Brunswick* removed a portion of the sand bar to permit the safe approach of the river steamers. A depth of 11 feet below low water was obtained after the removal of 5,050 cubic yards of sand and hard clay. Work was commenced on November 16 and suspended on November 25.

GRASSY ISLAND (Kings County).

The dredge *New Brunswick* widened and deepened the channel 3,750 feet long, 75 wide and 9 feet deep to permit the river steamers to reach the people living in that district. 26,400 cubic yards of mud and clay were removed making a depth of 9 feet at low water. Work was commenced on July 14 and completed on September 24.

HATFIELD'S POINT (Kings County).

The dredge *New Brunswick* worked one day, November 14, 1910, and removed 500 cubic yards of mud and clay from the face of the wharf, where there is now a depth of 9 feet at low water. A cut on one side was made 30 feet long, 35 wide and 9 feet deep; a cut on the other side was made 20 feet long, 23½ wide and 9 deep.

JENKINS COVE (Kings County).

The dredge *New Brunswick* removed 2,050 cubic yards of hard clay and stone in making a basin 170 feet wide and to a depth of 11 feet below low water. Work was commenced on September 26, and completed on October 1.

KENNEBECASIS RIVER (Kings County).

In accordance with instructions dated September 1, some 80 snags, sunken logs and dodgers have been removed from this river as they were a great menace to navigation. Work was commenced on September 19 and continued until the 27th of the same month, when the appropriation was about expended.

The total expenditure for the fiscal year ending March 31, 1911, amounted to $72.24.

LOWER JEMSEG (Queens County).

The approach to the high water wharf, which was built last fiscal year, was completed by adding a small amount of gravel and stone, which amounted to $73.47. Work was commenced on April 1 and completed on May 12.

Under instructions, dated November 14, a small wharf was built, 20 feet 4 inches long, 10 feet 10 inches wide, 19 feet 4 inches high and ballasted, at an expenditure of $214.89. Work was commenced on December 20 and completed on March 9.

The total expenditure incurred at this place during the fiscal year ending March 31, 1911, amounted to $288.36.

MAQUAPIT LAKE (Queens County).

This dredging is for the purpose of providing a channel 1,170 feet long and 75 wide to enable steamers to pass from Grand lake into French. A depth of 7 feet at low water is required. The dredge *New Brunswick* removed 17,600 cubic yards of clay, sand, &c., commencing work on October 3 and suspending on November 5, the ice having begun to form.

MATHER'S ISLAND (Kings County).

Repairs, which consisted of rebuilding the approach, damaged by ice, and adding some more sheathing and ballast, were made to the pier, which was built last year at this place. Work was commenced on July 18 and completed on August 9.

The total expenditure for the fiscal year ending March 31, 1911, amounted to $143.

MIDDLE ISLAND (Sunbury County).

During the month of August, some snags or sunken logs were removed from the St. John river, between Upper Sheffield and Maugerville.

The total expenditure amounted to $20.

MC ALLISTERS. (Queens County).

The mooring posts were placed on the low water wharf, built last fiscal year at this place, and a small amount of gravel and stone was added to the approach. Work was commenced on April 4 and completed on April 8. This expenditure amounted to $41.75.

Under instructions dated June 15, a roadway was constructed to the low-water wharf at an expenditure of $125. Work was commenced on September 1 and completed on September 16.

Some slight repairs were made on the wharf, consisting of fillers being placed at each corner to prevent the guard of the steamers breaking the fenders off, and new fenders were added, together with ring bolts, at an expenditure of $10; work was commenced October 24 and completed October 28.

The total expenditure incurred at this place during the fiscal year ending March 31, 1911, amounted to $176.75.

NEWCASTLE (Queens County).

The cap, flooring and three tiers of logs, together with fenders, were added to the high water wharf that was commenced last year. The roadway to the wharf was also constructed. Work was commenced April 1 and suspended on April 26 on account of the freshet, but was resumed on August 16 and completed on August 27.

The total expenditure for the fiscal year ending March 31, 1911, amounted to $986.03.

OROMOCTO SHOALS (Sunbury County).

The dredging was performed by contractor J. S. Gregory's dredge, *Asp,* which removed 63,556 cubic yards of ordinary spoil; a depth of 11 feet below low water 2,600 feet long and 225 wide having been obtained. Work was commenced on June 1 and completed on October 21.

The total expenditure, including inspection, for the fiscal year ending March 31, 1911, amounted to $19,562.30.

ST. JOHN TO FREDERICTON.

Some 300 snags were removed from this portion of the St. John river, consisting of sunken logs and trees. About 49 were cut up and burned and the remainder were hauled up on the bank above high water mark. Work was commenced on July 18 and completed on August 20.

The total expenditure for the fiscal year ending March 31, 1911, amounted to $707.

ROTHESAY (Kings County).

The old wharf, damaged by ice in the spring, was torn down and a cribwork was built around the old pierhead and thoroughly tied in to same. The pierhead was partially covered with deal flooring and provided with a slip 12 by 12 feet. Work was commenced on June 20 and completed on October 15.

The total expenditure for the fiscal year ending March 31, 1911, amounted to $2,175.73.

SHAMPERS (Kings County).

The dredge *New Brunswick* removed 1,700 cubic yards from around the face of the wharf to permit steamers to approach in safety. A depth of 9 feet below low water was obtained. The material consisted of hard clay and rock. Work was commenced on July 7 and completed on July 13.

SCOTCHTOWN (Queens County).

A combination high and low water wharf was commenced on November 10, 1909, and was continued until March 26. On June 22, 1910, work was resumed and the work was completed, with the exception of a small amount of ballast, on September 30, 1910.

The wharf consists of a pierhead 38 feet 9 inches long on an average width of 17 feet 4 inches. There is also an approach of stone and earth fill 29 feet long and from 25 feet 5 inches to 39 feet 10 inches wide.

The wharf is built on a ramp to accommodate boats along the side of the wharf during different periods of the freshet season. Two movable and six stationary mooring-posts are provided. Piles were driven on the two front corners for the purpose of breaking the flow of ice. These piles were bolted together, in clusters of 13 with iron straps every foot. The depth of water at the face of the wharf is 5 feet 3 inches below low water, ordinary summer level.

The total expenditure for the fiscal year ending March 31, 1911, amounted to $1,492.85.

THE RANGE (Queens County).

Fenders, flooring, two rows of logs on the approach and the ballast on the upper ballast floor were added to the high water wharf built last fiscal year. Work was commenced on April 1 and completed on April 16 at an expenditure of $364.11.

Under instructions dated November 14, a large quantity of slabs, which were part of an old mill wharf and which were lying promiscuously around the Range wharf, having been driven there by the ice, were removed, at a cost of $40; work was commenced on November 14 and completed on November 19.

The total expenditure incurred for the fiscal year ending March 31, 1911, amounted to $498.05.

WASHADEMOAK (Queens County).

On July 1, work was commenced removing dodgers from Washademoak lake, from Coles island to the mouth, and on August 11 was completed, after having removed 25 sunken trees and logs.

The total expenditure amounted to $47.50.

YOUNG'S COVE (Queens County).

Some sheathing, fenders and ballast were added to the high water wharf commenced last fiscal year. Work was commenced on April 1 and completed on April 29.

The total expenditure for the fiscal year ending March 31, 1911, amounted to $562.41.

TOTAL EXPENDITURE, RIVER ST. JOHN AND TRIBUTARIES, TIDAL.

The total expenditure incurred on River St. John and tributaries, tidal, for the fiscal year ending March 31, 1911, amounted to $27,134.17.

INTERNATIONAL COMMISSION, ST. JOHN RIVER.

The Commission met at Calais, Maine, on April 16, 1910, and appointed an advisory board of two engineers to direct the work: Mr. H. S. Ferguson of Millinocket, Maine, and Mr. S. J. Chapleau.

By resolution of the Commission, the field work would be financed by the Canadian appropriation until such time as the Commission will decide that the American appropriation be called upon.

The work consists primarily of an hydraulic investigation of the St. John river, its tributaries, lakes and watersheds, to determine the possibilities and effect of creating storage by dams, and otherwise improving the river.

The field work is practically completed and was done under the direction of Mr. M. H. Ranney of Mohawk, N.Y., who is acting under the joint instructions of the engineers.

ST. LOUIS RIVER.

During 1910-11, the dredging of the channel of the St. Louis or Kouchibouguacis river and the construction of breastworks or training walls, begun in the previous season, were continued by day labour, the St. Louis Agricultural Society's dredge being hired for $13 per day, including engineer, gasoline, oil and repairs.

A training wall, 630 feet long and 10 to 12 feet wide, was constructed of three tiers of timber, filled with brush, stone and dredged material. 95 stakes were driven along the channel face and spiked to the cross logs to secure the work.

About 1,700 cubic yards of sand, &c., were removed in widening the cut, made last year, from 26 to 40 feet wide for a length of 520 feet and in extending the cut a distance of 1,293 feet, 40 feet wide, and a further distance of 900 feet, 13 feet wide.

Work was in progress between the 22nd and 29th August and between September 7 and October 28.

The expenditure for the fiscal year was $931.33.

The total expenditure has been $5,063.75.

SEAL COVE.

Seal cove, on Grand Manan island, about 62 miles southwest of St. John, as the crow flies, is one of the most prosperous fishing villages in the maritime provinces, and has increased and improved very much during the last five years. There are about 150 fishermen possessing 50 boats of from 9 to 18 tons each. The annual value of the catch is estimated at about $150,000. The cove is open to the strong southwest winds of the Bay of Fundy, and in the creek (dry at low water), at the upper end, where some shelter is found, there is not room enough for all the fishing boats.

To protect the mouth of the creek, in 1909-10, a breakwater, 448 feet long and from 24 to 37 feet wide, was built.

In 1910-11, some sheathing, washed off by the sea, was replaced.

Work was carried on the 10th, 21st and 22nd of March, 1911.

The expenditure during the fiscal year 1910-11 is $50.14.

SHEDIAC.

On June 23, 1910, a contract was entered into with Messrs. Burns and Charleson for the construction of a wharf at Shediac.

Work was begun on October 19, and by the close of the fiscal year the round timber work was completed, the stringers were placed out to block 18; outside stringers to the end of the work, and the covering to block 14; part of the creosoted sheathing had been placed on the shore blocks or approach and on blocks 1, 2, 7, 8 and 9.

The wharf is 1,105 feet long and consists of a shore block 212 feet long by 20 feet wide; 20 blocks 20 feet square; 21 spans of 20 feet; one block 30 by 20 feet; one span 30 by 20 feet, and a pierhead 30 feet square.

A 30 by 50 foot extension to the pierhead was built, as an extra under the contract, up to within 7 tiers of the full height.

The expenditure for the fiscal year was $10,004.58.

SHIPPIGAN GULLY.

Work was in progress between June 20, and October 19, rebuilding and improving the breakwaters and beach protection works at Shippigan Gully.

On the east side of the gully, about two feet of compressed brush was placed in the shore end of the breakwater on a length of about 180 feet, and over the brush about 50 cubic yards of ballast and over 100 cart-loads of gravel was loaded. About 200 lineal feet of stake and brush breastworks were built along the outside of the beach, starting at the breakwater. A triangular block 30 by 20 feet was built on the outside

of the breakwater to strengthen the latter and to deflect the waves which tended to cut through the narrow part of the beach at the inner end of the breakwater. The block is of pilework, 68 piles altogether, with 10 by 12 inch walings and cross-ties; filled with 3,000 cubic feet of brush and 120 cubic yards of ballast, and covered with 4 inch plank.

On the west side of the gully, 184 lineal feet of the breakwater was rebuilt at the shore end with 44 main piles and 234 close piles, 10 by 12 inch walings, and 10 by 12 and 8 by 10 inch braces, and covered with 4 inch plank, 6,000 cubic feet of brush and 100 cubic yards of ballast were placed in the new blocks near the end of the breakwater.

The expenditure during the fiscal year 1910-11, amounted to $3,000.

The total expenditure has been $117,284.89.

STONEHAVEN.

Between the 11th July and the 17th October and between the 22nd and 27th October, work was in progress on the construction of a cribwork block around the northeast corner of the breakwater to retain the stone slopes running either way along the outer face of the breakwater. The crib is about 45 feet long, 5 feet wide at the top, 15 feet at the bottom and about 12 feet high; is composed of round timber cribwork sheathed with 6-inch hardwood. The stone slope was built for a length of 68 feet towards the shore and 77 feet towards the west end of the pierhead. Fifty-five feet of the inside of the pierhead was sheathed with 3-inch hardwood plank. The stone slope along the outside of the western pier, which was damaged by a storm, was rebuilt for a length of 75 feet and the cribwork was refilled with ballast. 260½ yards of large and 275 of small stone were procured for the work.

The expenditure for the fiscal year 1910-11 was $2,030.32.

The total expenditure to date has been $52,835.32.

Dredging.

Between the 2nd and 27th June, 1910, dredging was in progress under agreement with the Eastern Dredging Co., Ltd., with the dredge *Hayward,* in deepening the berth inside the breakwater for a length of about 250 feet and width of about 150 feet, to a depth of 11 to 12 feet at low water or 18 to 19 feet at high water, ordinary spring tides. The material removed amounted to 6,241 cubic yards of silt, clay, ballast, &c., 100 cubic yards of gravel, stones, &c., were also removed from outside the entrance to the breakwater.

The expenditure on dredging, including inspection, for the fiscal year was $2,296.35.

The total expenditure on dredging to date had been $4,148.93.

TABUSINTAC (DREDGING).

During 1910-11, dredging was in progress under agreement with Mr. Peter England to give a channel with about 2 feet at low water or 7 feet at high water, for the passage of rafts, light draught tugs and boats across the shoals between the Tabusintac river and the inner Miramichi bay, inside the low sandy islands which skirt this part of the coast.

The dredge *Excavator* worked between the 7th May and the 26th July, removing 9,660 cubic yards of mud, of which 1,301 cubic yards were moved twice.

The dredge *Peter England* worked between the 16th May and the 9th July, removing 7,741 cubic yards, of which 1,010 were moved twice.

Total material moved, 17,401 cubic yards.

A cut was made about 25 to 40 feet wide about 4,400 feet long.

The expenditure for the fiscal year, including inspection, was $5,125.81.

TRACADIE.

During 1910-11, the stringers, covering, caps, and fenders of the public wharf were renewed over a length of 622 feet, beginning 154 feet from the inner end; 14 spans, 13 blocks and 98 feet of the approach were repaired. Most of the timber renewed were sixteen years old.

In making the repairs, the width of the wharf, which was originally 25 feet on top, was reduced to 23 feet.

The work was in progress between the 18th July and the 23rd September, and the 29th September to 22nd October.

The expenditure for the fiscal year amounted to $2,002.45.

TRACADIE HARBOUR.

During 1910-11, the construction of breastworks on the long sand beach which separates Tracadie harbour from the Gulf of St. Lawrence was continued. These breastworks are built to hold the drifting sand and thus raise the crest of the beach and prevent storm tides from making openings across it.

The breastworks are composed generally of two rows of pickets placed 4 feet apart each way, filled between with brush and secured with cross stakes nailed to the pickets above the brush.

About 4,050 lineal feet of new breastworks were constructed during the fiscal year, of which 965 lineal feet were 8 feet wide and composed of three rows of pickets. About 2,600 lineal feet of old breastworks, destroyed by a broken raft of logs which washed against them during an unusually high tide last autumn, were rebuilt. Six hundred feet of the old breastworks were widened 4 feet at low points by an additional row of pickets and brush, and additional brush was placed between the pickets in a length of about ¾ of a mile of the old breastworks.

Work was in progress between the 20th June and 12th August; 8th to 16th, and 27th to 29th September.

The expenditure for the fiscal year was $1,999.58.

The total expenditure to date has been $4,951.79.

TRYNOR'S COVE.

Trynor's Cove on L'Etang river, in the county of Charlotte, 5 miles from Pennfield Station (38 miles west of St. John) on the New Brunswick Southern Railway, and 6 miles from St. George.

It is proposed to build a wharf of round cribwork 85 feet long, with an approach of stone 30 feet in length. The pier-head will be 33 by 45 feet, standing 14 feet at high water.

The timber, together with some ballast, is now on the ground. Work is not yet commenced.

The expenditure during the fiscal year 1910-11 is $1,069.23.

TYNEMOUTH CREEK.

Tynemouth creek, 21 miles east of the city of St. John, is one of the several small havens, dry at low water, found on both shores of the Bay of Fundy, which are only useful on account of the high range of the tide. Tides rise here about 28 feet. Inside a beach of gravel and stone, is a tidal basin, accessible to small vessels at high water by an opening at the east end of the beach. At the entrance of the harbour, two piers were built some years ago. Inside the piers, the channel is in some places stony, and in others rocky.

During 1910-11, the east pier was sheathed with four-inch spruce in long lengths. The west pier was also sheathed, and the wing, ballasted. The channel was improved by scraping and blasting.

Work was commenced on the 3rd September and completed on the 30th November, 1910.

The expenditure during the fiscal year 1910-11, is $900.

WELCHPOOL.

Welchpool, a fishing village of 600 inhabitants, is situated on Campobello island, forming part of the county of Charlotte, 50 miles southwest of St. John, in a direct line, and 14 miles south of St. Andrews. Spring tides rise 21½ feet, neaps 18½ feet.

A wharf of round cribwork, 279 feet in total length was built at this place in 1909-10.

During 1910-11, four gallows, for unloading freight, were built and sheathed; four long fenders, with knees, were placed on the face of the wharf. Steps, consisting of three flights, resting at the bottom on cribwork; at the middle landing, on piling, and at the top, on brackets, were built. A galvanized pipe hand-railing was placed at the side of the steps. Fender piles were driven to protect the landings. Six loose piles, driven into the bottom and chained at the head, were placed for corner fenders. The approach was raised 8 inches and gravelled. The movable slip was besides put in order.

Work was begun on the 30th August and completed 8th November, 1910.

The expenditure during the fiscal year is $824.51.

WILSON'S BEACH.

At Wilson's Beach, a fishing settlement in a small cove on the west side of Campobello island, part of the county of Charlotte, a breakwater, 373 feet in length, was built between 1874 and 1878, by joint contribution of the federal and local governments. The work, having become dilapidated, was reconstructed by 1906-7, the new part being 230 feet in length.

During 1910-11, repairs were made to the covering of the approach; new pulleys and chains were placed in the gearing of the movable slip, together with two counterpoises, 800 pounds each, working in vertical boxes. The slip was put in good order.

Work was begun on the 2nd December and completed on the 26th December, 1910.

The expenditure during the fiscal year 1910-11, is $173.76.

WOODLANDS.

Woodlands is situated at the head of Beaver harbour, about 1½ miles from Beaver harbour by water, and 4 miles by road. Pennfield Station, in Charlottte, on the New Brunswick Southern railway, is about 4 miles distant.

At Woodlands, it is proposed to build a pile wharf, 200 feet in length, with a pier head 60 by 40 feet, standing in 12 feet at high water. Materials are now on the ground. Work is not yet commenced.

The expenditure during the fiscal year 1910-11, is $1,422.38.

PROVINCE OF QUEBEC.

ANGERS.

Angers, or L'Ange Gardien (population, 1,800), in the county of Labelle, is situated on the Canadian Pacific railway, North Shore line, 13 miles below Ottawa, and ¾ mile back from the river.

In 1910, parliament granted $5,700 for the construction of a pilework wharf. A contract was entered into with Messrs. J. H. and H. R. Murphy, of Buckingham, for the sum of $5,390. Work was started on November 25, 1910, and wharf was completed March 21, 1911. During construction of wharf, the necessity of building a second ice-breaker became apparent, and authority was given to accept the contractors' offer to build a cribwork ice-breaker for the sum of $450.

The structure of pilework extends out into the Ottawa river 208 feet, drawing 10 feet of water, and standing 13 feet above low water level, protected by two ice-breakers. The landing face is sheeted, provided with fenders. There is a slip and a warehouse 12 by 18 feet.

Expenditure to March 31, $5,744.27.

ANSE ST. JEAN.

Anse St. Jean is situated on the south shore of the Saguenay river, Saguenay county, 25 miles above its mouth.

The public landing pier was commenced by the local government in 1876, and continued by federal government in the years 1879-80-1.

For work done from 1880-1, to March 31, 1910, see Report, Department Public Works, 1909-10, page 77-78, part IV.

Amount of expenditure for the above mentioned period is $12,330.61.

The work done during the fiscal year ending March 31, 1911, was the renewal of a portion of the face timbers, floor stringers, a part of the sheathing; the flooring of the inside slip, on the east side, and of the wharf was renewed in 4-inch plank.

Work was started June 28 and was resumed on August 27.

Amount of expenditure, $1,555.31.

ANSE À BEAU-FILS.

Anse à Beau-fils, in the municipality of Cape Cove, county of Gaspé, is situated on the Gulf of St. Lawrence, 6 miles south of Percé.

In the years 1898 to 1901, protection works, on each side of the channel leading to the inner basin, were built; consisting of two training piers, each about 440 feet long.

During the last fiscal year, a breakwater of 100 feet long was built on the east side of the entrance to the harbour and the western jetty lengthened 80 feet. The eastern old jetty having settled badly towards the entrance had to be partly removed.

The work was completed in October.

Expenditure, $3,168.94.

ANSE À LA GROSSE ROCHE.

L'Anse à la Grosse Roche, in the parish of Sacré-Cœur, Chicoutimi county, is situated on the north side of the River Saguenay, 12 miles from its mouth.

For work done from 1903-04 to 1905-06, see 'Public Works Report,' 1906, part IV, page 110.

From 1906-07 to 1909-10, minor repairs were made to the wharf.

The work done during the fiscal year 1910-11, was the construction of a movable slip, and general repairs.

Work started July 1 and was completed September 24.

Amount of expenditure, $600.93.

ANSE À L'ISLOT.

L'Anse à l'Islot is a small harbour, 7 miles east of Newport; protected from the northerly and easterly winds by the main coast and from southwest gales by a small

island, being thus open only to southerly gales. It was decided to build a landing pier running from the main shore towards the outside end of the island in a south-westerly direction, answering both as a landing pier and as a breakwater against southerly gales.

During the last fiscal year, the freight shed, an office and a waiting-room were completed; the wharf was re-ballasted and protected by a pile sheathing for a length of 50 feet on both sides.

Expenditure, $1,535.05.

ANSE AU GRIFFOND.

Anse au Griffond is 17 miles northwest of Gaspé Cape.

The mouth of the river having been choked and closed up by a gravel bar thrown in by northeasterly gales, overflowed the flats and parts of the village, causing a good deal of damage to properties and to the fishing industry.

The new channel running easterly inside of the gravel bar had to be closed by a training pier, 345 feet long and 22 wide, by an average height of 11 feet, with brush and stone backing.

The gravel bar, being 10 to 12 feet high and 170 feet wide, had to be cut through for the continuation of the training pier and the opening of a new channel, and a channel of 600 feet, removing 440 cubic yards of earth, had to be made at some distance above the work, so as to take the water from a small tributary into the main river above the works under construction.

Three hundred and ninety feet of the west or left hand side training pier has been built and secured.

During the last fiscal year, a training pier of 270 feet was built to protect entrance on the southeast side, and the old work was repaired and raised 2 feet.

Expenditure, $4,264.70.

ANSE DU CAP.

Anse du Cap is a large municipality, half-way between Grande Rivière and Percé, composed of well-to-do farmers and fishermen.

The bank having been washed away, from Anse à Beaufils to the landing pier of Cape Cove, the approach to the pier had to be rebuilt and lengthened some 80 feet. Sixty-six piles were driven on the outside face for protection and some 260 cubic yards of ballast thrown in.

Expenditure, $344.98.

ASHOUAPMOUCHOUAN, PÉRIBONKA AND MISTASSINI RIVER.

Ashouapmouchouan river, in the county of Chicoutimi, is one of the tributaries of Lake St. John, and is navigable up to St. Félicien; a boat plys between Roberval and St. Félicien.

Péribonka river, in Chicoutimi county, is one of the tributaries of Lake St. John, and is navigable up to Honfleur for 12 miles; boats ply from Roberval to Honfleur.

Mistassini river, in Chicoutimi county, is also a tributary of Lake St. John. The river is navigable up to Mistassini village, distant from its mouth 18 miles; boats ply from Roberval to Mistassini.

For details of construction of dykes in these three rivers, see 'Public Works Report, 1909, page 87, part IV.'

Nothing was done on the Ashouapmouchouan river during the past fiscal year.

The work done on the Péribonka was the continuation of the dam commenced in previous years; 480 feet were constructed during the past summer.

100	feet long,	4	feet high,	14	feet in width.
150	"	5	"	14	"
230	"	6	"	14	"

With the 250 feet constructed in 1908-9, the dam is now 730 feet in length, 14 feet in width, and an average height of 5 feet.

Work started 1st of August to 30th September, 1910.

On the Mistassini river, 850 feet were added to the dam commenced in 1908-9, on an average height of 4 to 8 feet and 12 feet in width; this dam is now 1,100 feet long.

Work started on the 25th of July and was completed 21st of November.

During the last winter, a certain quantity of timber was purchased to continue the work next year. This cutting of the timber during the winter will be of great benefit.

AYER'S CLIFF.

Ayer's Cliff, a post village in Stanstead county, on the Tomifoba river and Massawippi lake. It is a station on the B. and M. railway. It contains 1 Union church, three stores, two hotels, one saw and grist-mill, one carriage factory, printing office and express office. Population, 600.

At the beginning of February, 1911, the construction of a small wharf was begun some 110 feet east of an old private wharf.

The new structure consists of—

1. A crib headlock, 35 by 20 feet, open-faced below low water level and 10 by 10 close-faced above; sunk 12 feet high into 8 feet of water at mean level.

2. A stone approach 30 feet long and 35 feet wide at top with slopes of 1 in 3.

When work was suspended March 31, all was complete except the placing of fenders and corner steel plates, and the building of a small open shed.

Expenditure, $1,046.29.

AYLMER.

Aylmer, Wright county, is on the Quebec shore of Lake Deschênes, an expansion of the Ottawa river, 9 miles above the city of Ottawa. It is 4 miles from Britannia, the foot of navigation. The town of Aylmer has a population of 3,000 and an additional floating population of some 1,500.

At its last session, parliament granted $5,000 towards the construction of a public wharf at this place. A contract was entered into with Messrs. Thomas and John Moran for the construction of a wharf for the sum of $8,974.

Work started on November 8 and discontinued December 9. Work was resumed on January 4, and the structure well advanced March 31.

The wharf is an open-face cribwork structure located at the foot of Main street, extending into Lake Deschênes 546 feet at an elevation of 8½ feet above low water level, and drawing 10 feet at the landing head, in dredged channel. The wharf consists of a landing head 80 by 30 feet; a wooden approach with railing on both sides, and is composed of twenty-one (21) cribs 10 by 12 feet, 16 feet apart, with a stone approach 73 feet long.

Expenditure to March 31, 1911, $4,995.54.

Dredging.

The Departmental dredge *Deschênes* worked at Aylmer, on Lake Deschênes, May 13 to July 15, and again October 7 to November 14, making three cuts aggregating 2,189 lineal feet to a width of 25 feet along the axis of the western entrance channel of the Ritchie dock and proposed government wharf. Two other cuts, 26 feet wide, 95 feet long, were made on the east side of the proposed site for landing head of new wharf, and some cleaning of adjacent ridges was performed to complete the berth for proposed cribs.

Eleven thousand five hundred and ninety-seven cubic yards of sand and clay (scow measure) was removed to a least depth of 9 feet and spoiled in 49 feet of water, ¾ mile out from the Ritchie dock.

QUEEN'S PARK.

The Departmental dredge *Deschênes* worked at the Victoria Yacht Club dock, Queen's Park, Lake Deschênes, July 16 to October 6. A required shelter basin was first improved in the rear of the club house, to a depth of 9 feet outside and to the bed rock along the inner edge, which shoals to 3 feet of the E.L.W.L. Two cuts, 1,313 and 164 lineal feet, respectively, were made to improve, in part, the proposed eastern and western entrance channels to the same dock, used as a terminus for tourist traffic by the Hull Electric Company.

Ten thousand and ninety-seven cubic yards of sand and clay (scow measure) was removed and spoiled in deep water ¾ mile out from the dock.

BAIE ST. PAUL.

Baie St. Paul is a village in the county of Charlevoix; its population is 1,500. It is situated on the north shore of the river St. Lawrence, 60 miles below Quebec. It is built on either sides of the Rivière du Gouffre, which is tributary of the St. Lawrence, and empties into a large bay three miles wide. The bay is dry at low tide.

During the present fiscal year, the western corner of the wharf was completely renewed and protected by rock elm fenders rounded off to a radius of 2 feet. The hardwood corner was covered with 4 steel plates 10 feet by 4 feet by ½ inch, also minor repairs were made to the flooring, and one of the mooring-posts was renewed.

The work was commenced on September 13 and completed on October 10, 1910.

Urgent minor repairs were also made to the flooring, the fenders and the movable slip, from time to time, since the 27th July to the 16th November, 1910.

The expenditure for the present fiscal year, 1910-11, amounts to $1,099.80.

BAIE DE LA VALLIÈRE.

Baie de la Vallière is situated near the mouth of River Yamaska, half way between Ste. Anne de Sorel and St. Robert.

From May 17 to June 25, departmental dredge *St. Louis* worked in Baie de la Vallière, between the Grande Commune d'Yamaska and the parish of Ste. Anne du Chenal. Some 1,900 lineal feet long of last year's dredging were cleansed and a further 400 feet advanced.

Quantity dredged, 11,262 cubic yards of clay and sand.

BARACHOIS DE MALBAIE.

Barachois de Malbaie is a large parish and municipality situated at the head of Malbaie bay, some 12 miles east of the county town, Percé.

Barachois, on account of the large area of rich farming lands situated along four rivers that form the Barachois, on account of the important lumber firms that have built their mills along the Barachois, and on account of its first-class fishing harbour, now that the government has started a training pier to improve the entrance, may be considered the most promising centre in Gaspé Peninsula.

Until the government started the training pier, now under construction, the fishing boats could not safely enter or go out of the harbour at falling tide and at low tide on account of shifting sand bars.

They had to remain outside and wait for the rising tide to come in. The work was commenced in 1904.

During the last fiscal year, the breach in the approach made by the storms of fall of 1909 had to be repaired at a cost of $1,800 by a row of pile-work anchored and supported by pile bents every 10 feet. There were 363 piles driven; ballasting that had not been completed on the whole length of the work had to be prosecuted and protected where needed by fascines mattresses. The crib of 80 by 27 feet could not be placed in position on account of lack of ballast.

The whole of the timber on hand had to be barked and properly piled, and some 350 yards of sand had to be removed from the crib under construction that had been partly buried in a storm.

Timber and stone ballast were bought and paid for during last winter.

Expenditure, $4,718.44.

BATISCAN RIVER.

The Batiscan river takes its rise in the Laurentide mountains in the county of Quebec, crosses the county of Portneuf and the southeast corner of the county of Champlain, and empties into the northern side of the St. Lawrence at the parish of Batiscan, 21 miles below Three Rivers and 57 miles above Quebec.

The river is navigable at its outlet for a distance of about 5 miles to the highway bridge at Ste. Geneviève de Batiscan village.

The dredge *Capital* and plant, owned by Messrs. Dufresne & Marchildon, worked in the steamboat channel from April 30 to September 7, 1910, to increase the depth in the channel, from the Canadian Pacific Railway bridge to Ste. Geneviève de Batiscan Landing (section 7,000 feet to section 28,000 feet above the outlet), to four feet at low water, and to 7 feet at low water from the outlet to the sawmill at the Canadian Pacific Railway bridge at 7,000 feet above the outlet.

From April 30 to May 11 the dredge worked in front of the landing at Ste. Geneviève de Batiscan (section 28,000 feet above outlet).

From May 11 to 27, two cuts were made to widen the channel at the curve at section 14.

From May 27 to September 7 the dredging was performed below the Canadian Pacific Railway bridge for a 7-foot channel.

The work done amounted to 83,525 cubic yards of clay and sand removed, and the expenditure under that head was $17,312.58.

BEAUHARNOIS.

Beauharnois, an incorporated town in the county of Beauharnois, of the district of Beauharnois, situated on lake St. Louis, formed by the St. Lawrence, 22 miles south-west of Montreal. It contains several factories, grist mill, woollen mill, foundry, a number of stores, 3 churches, several schools, 1 convent, hospital, telephone office and a branch of the Merchants' Bank, and has a large trade in horses, grain, lumber, firewood. Two steamers ply daily between Montreal and Beauharnois. It has telegraph and express offices. The town is lighted by electricity. It has excellent water power which is about to be increased largely, being supplied by a feeder from the St. Lawrence to the St. Louis. It is a favourite summer resort for boating, fishing and duck shooting; is a station on the St. Lawrence and Adirondack branch of New York Central and a branch of the Grand Trunk railway with terminus. Population, 1,976.

From May 25 to July 8, Mr. H. M. Connolly's dredge *Ottawa,* worked in Lake St. Louis, at Beauharnois, opposite the Kilgore wharf. The basin was dredged to 10 feet below zero gauge, and 43,706 cubic yards, scow measurement, of clay, removed. Average depth of cut made, 5½ to 6½ feet. Extreme length of dredging, 750 feet, extreme width, 400. Contract prices, 20 cents a cubic yard.

BEAUPORT.

Beauport is a village situated on the north shore of the river St. Lawrence, in the county of Quebec, some 3 miles below Quebec.

During the present fiscal year, 10,000 square feet of the flooring of the wharf were replaced; 100 lineal feet of coping was renewed, and 50 tie-rods were placed; this wharf was filled in with ballast, stone and gravel.

The work was commenced on the 1st June, 1910, and completed on the 30th July, 1910.

The expenditure for the present fiscal year 1910-11, amounts to $802.62.

BECANCOUR.

Becancour, a parish and town in Nicolet county, on the Grand Trunk railway, situated near the mouth of the Becancour river, 6 miles from Doucet's landing, on the St. Lawrence river and 7 miles from Three Rivers. It contains 1 grist mill, 2 saw mills, 1 carriage factory, 5 cheese and butter factories, 2 hotels, 10 stores and one Roman Catholic church, and has a large trade in lumber, cheese, hay and flour.

On October 24, 1910, the construction was begun, by day labour, of a small landing pier on the east bank of the east branch of river Becancour, some 1,200 feet from its confluence with the St. Lawrence river. Work suspended October 31; resumed January 2, 1911, and the structure completed February 28.

The wharf is from one foot above low water, a close-faced crib headlock 50 feet long, outside face, by 30 feet wide, resting partly on two rows of piles, 8 feet distant, (the front one with two feet centre to centre, the other 4 feet centre to centre) and partly on the ground. The structure has 8 feet of water along outer face and rises 10½ feet above zero gauge. The space between headlock and top of bank is filled in with stone and earth. Total cost: $4,708.08.

The ground for proposed wharf, including an 18-foot right of way, 820 feet long, and forming a total area of 35,910 square feet, had previously been sold to the Crown by Mr. Lucien Rhault, for the sum of $100.

BELŒIL.

Belœil village, a post village in Vercheres county, on the Richelieu river, 1½ miles from Belœil station.

It contains 1 Catholic church, 1 saw-mill, 2 hotels, 9 stores, 1 branch bank (Eastern Townships), and 1 powder mill. Population, 1,805.

In June, 1910, a sum of $170 was expended in repairing one of the booms at Belœil, which had been broken, and in putting the others in place.

In the middle of February, 1911, extensive repairs were begun to the guide pier on the east side of channel for which an appropriation of $2,000 had been voted by parliament. This guide pier, of a length of 158 feet and standing from 12 to 18 feet above low water, was sheathed with 8-inch hemlock from 18 to 24 feet long and covered with ⅛-inch steel plates 4½ feet high.

Work was completed March 31, with a total expenditure of $1,644.81.

Dredging.

From July 4 to August 17, 1910, departmental dredge *St. Louis* worked at Belœil cleaning the 9-foot channel between Grand Trunk wharf and government guide pier and Grand Trunk Railway swing pier. Some 1,912 cubic yards (scow measurement) of boulders and sand were removed.

BERTHIER (EN BAS).

The village of Berthier, in the county of Montmagny, is on the south shore of the St. Lawrence, 29 miles below Quebec.

A large traffic in farm produce is carried on through the coasting steamer *Champion,* which plies daily between Quebec and Berthier.

Spring tides rise 21 feet; neaps, 13 feet.

During the fiscal year 1910-11, the sum of $62.07 was expended, in the month of June in doing small repairs to the wharf.

The work consisted in replacing pieces of sheathing of elm 6 inches thick, and 5 iron straps which were carried away by the steamer *Champion.*

Repairs were also done to the flooring and to the east side slip.

BERTHIERVILLE.

Berthierville (Berthier en haut), a thriving river port and incorporated town in Berthier county, on the shore of the St. Lawrence and a station on the Canadian Pacific railway. It contains 2 churches (Roman Catholic and English), 20 stores, 3 hotels, 2 saw-mills, branches of the Provincial and Hochelaga Banks, 1 waterworks, 1 convent, 1 college, 1 grammar school, 1 ladies' seminary, and telegraph and express offices, and Melcher's gin distillery. Population, 1,364.

From May 19 to November 19, L. Cohen & Son's dredge, *Little Giant,* worked under contract in the St. Lawrence northern branch, leading to the town of Berthierville. Some 125,406 cubic yards, scow measurement, of sand and clay were removed in dredging an 11-foot channel, 100 feet wide, for 3,100 feet, and 25 feet wide for another 1,350 feet.

The channel is complete from opposite Hay island up to 1,000 feet down stream of Rivière Chaloupe, or some 1½ miles from Berthierville. Average depth of cut, from 3 to 7 feet. Contract price per yard, 16 cents.

BIC.

Bic, on the south shore of the St. Lawrence, in the county of Rimouski, about 170 miles below Quebec, is a favourite summer resort. Its harbour affords the best natural shelter for vessels of moderate draught.

Spring tides rise 17 feet; neaps, 9 feet.

The Department of Public Works owns two wharfs at Bic: An old one which is located in the rear of the cove of old Bic harbour, and another at the extremity of the eastern side of the same cove, or at Pointe à Coté (see report for 1909-10); this wharf is not yet completed but on the 24th of November, 1910, a contract was entered into for its completion. At the close of the last fiscal year the construction was not yet commenced.

During the fiscal year 1910-11, the sum of $1,000.12 was expended between the 20th of June and the 19th of August, in making repairs to the old wharf at Bic; this wharf consists of piers connected by platforms, heavy timbers, 35 feet long and 12 inches square, were renewed and a new flooring was laid over a length of 300 feet, by a width of 22 feet. The timbers on top of the piers were also renewed on a height of two feet, and 600 feet in length of new cappings were replaced.

During the last part of the month of August, the sum of $40.31 was also expended in doing some repairs to the inner section of the new wharf at Pointe à Coté.

BONAVENTURE RIVER.

Bonaventure river, in the parish of St. Bonaventure, county of Bonaventure, is one of the largest rivers of the Baie-des-Chaleurs; the harbour, at its mouth, is the most important harbour of the peninsula.

During the last fiscal year, the north-east corner of the training pier, built in 1908-9, which had settled down about two feet, has been raised to its normal height, and protected by piles driven close together into the bottom from ten to fifteen feet.

The work which was carried out by day labour, was commenced on the 1st of July, and completed on the 30th of the same month.

The amount expended towards these repairs is $861.72.

On the 14th of December, 1910, a contract was entered into with Mr. R. N. Leblanc for the construction and completion of an extension to the present training pier.

The construction will be 650 feet long by 22 feet wide, sheathed from bottom to top with spruce planks, 6 inches thick.

The work will commence on the first of next June.

Amount of contract: $13,900.

Protection work.

In order to protect the training pier and the remaining part of the bank, at the mouth of the Bonaventure river, against the continuous shifting and alteration of the river and to prevent cut-offs to take place which would be the ruin of the great improvements made at that place, a protection work, 563 feet long, 10 feet wide by an average height of 6 feet has been constructed.

It is a round timber construction, ballasted with stone, the outer side sheathed with 3 inches deals and protected at every cross-tie intersection by two piles driven ten to fifteen feet into the bottom.

The work which has been carried out by day labour at the cost of $3,001.19, was commenced on the 5th of November, 1910, and completed on the 31st of March, 1911.

Dredging.

During the last fiscal year, a contract was entered into with Mr. François Lemoine, to deepen, dredge out and clean wholly and entirely to 10 feet of water, E.L.W.S.T., the channel of the entrance to the river Bonaventure, county of Bonaventure, at the price of 24½ cents per cubic yard.

The work was commenced on July 15 and suspended on November 1.

The work performed during the season is as follows:—

	Cubic yards.
Material scowed away	14,800
Material cast-over	23,291

BOUT DE L'ILE.

Bout de l'Ile, a post village in Laval county, 15 miles from Montreal. It has 1 Roman Catholic church, 1 store, 1 hotel, and 1 mineral water factory. Population, 100.

From June 6 to 25, 1910, departmental dredge, *No. 3,* worked at Bout de l'Ile, enlarging basin and channel leading to temporary pile wharf at the end of public road.

Some 5,640 cubic yards, scow measurement, of boulders, clay and sand were removed in dredging said basin 200 feet long, 150 feet wide, and to a depth of 4 feet below E.L.W.L.

BREWERS CREEK.

Brewers Creek, a settlement of 125 inhabitants, in Labelle county, is situated on the west shore of Lièvre river, 9 miles from Buckingham.

In 1910, parliament granted $3,000 for the construction of float landings on Lièvre river. A cedar float landing, 25 by 30 feet, was built at Brewers Creek, at a cost of $288.33. Work started on August 7 and the float was completed on the 27th.

BRYANT'S LANDING.

Bryant's Landing is in Lake Memphramagog, township of East Bolton, Brome county, some 7 miles south of Magog. It is a summer resort.

On May 30, 1910, order in council was passed authorizing the acceptance from Mr. C. W. Bryant, of the free transfer to the Crown of Bryant's wharf, and 30 feet right-of-way thereto from public road.

At the end of June following, reconstruction work was begun, suspended August 17, resumed October 3, again suspended November 30, resumed March 24 and completed March 31, 1911.

The old structure was razed to extreme low water level, and a 6-foot close-faced crib, 54 feet long outside face, with return wings of 18 feet and 17 feet 9 inches high, sunk in 12 feet of water, outside face, and fully ballasted with stone. The stone approach, 42 feet long and 45 feet wide at top, with sides sloped 1 in 1, and right-of-way to wharf 810 feet long, were improved and the latter fenced on both sides. A small open shed, 10 by 12 feet, was also erected over southern end of headlock.

Total expenditures, $2,809.44.

BUCKINGHAM.

Buckingham (population 6,000) county of Labelle, an industrial town, 3 miles back from the Canadian Pacific railway, located on the Lièvre river.

At its last session, parliament granted $3,000 towards the construction of float landings on the Lièvre.

The pilework wharf, planned for this place, was abandoned for want of a site on reasonable terms, and the offer of free site and maintenance for a float landing accepted. The float, 40 by 50 feet, consists of 272 empty oil barrels secured to double flooring. The warehouse, 18 by 24 feet, is in the centre, leaving wharf space of 11 to 13 feet outside. Materials were secured during the fall and construction was effected March 1st to 25th.

Expenditure to March 31, $2,315.98.

CABANO

The village of Cabano in the County of Temiscouata, is situated on the west shore of lake Temiscouata, and is an important station of the Temiscouata railway, about 45 miles south of River du Loup.

The firm of Donald Fraser and Sons operates extensive shingle and saw mills at Cabano, and several other smaller firms are operating which makes the lumber traffic very active at that place. From September 1, to November 17, 1910, the sum of $3,484.01 was expended in the construction of a landing pier at Cabano. This work is to supplement the construction of the wharf built last year on the opposite side of the lake Temiscouata, at Squateck road, to provide facilities for landing to the Squateck community living about 20 miles east, and which has no other way to reach Cabano, the nearest station of the Temiscouata railway.

The landing pier, when completed, will have a length of 272 feet and a width of 30 feet; the head being 29 by 38 feet and the total height shall be 14 feet. Flooring spaces are provided at different levels to facilitate the landing at any stage of water. A length of 162 feet is now completed and a height of three feet is built on the remaining 112 feet; it is open faced, sheathed with spruce four inches thick and the batter is 1 in 4 on the outside.

The timber used for the construction was, for a good part, bought and paid for on last year's appropriation.

When the head block was started and the construction was about five feet high and full of stone, the bottom which consists of sandy clay, gave way and sank down with the crib which is now lying under 30 feet of water.

On that account, the location of the pier had to be modified.

CACOUNA.

Cacouna, one of the best known and most frequented summer resorts in Canada, is situated on the south shore of the St. Lawrence, in the county of Temiscouata, 120 miles below Quebec.

Spring tides rise 20 feet; neaps 12 feet.

During the fiscal year ended March 31, 1911, an addition to the wharf, 100 feet in length; 25 feet wide on the top with a batter of 1 in 12, and a mean height of 20 feet, was built at Cacouna.

The crib was close-faced and placed at the outer end of the wharf and in the same straight line; it is substantially built with upright binding posts every twenty feet and filled with stone ballast.

The construction was carried on by day labour, was begun on June 21, and completed by October 10.

Most of the timber required for the work was bought and paid for the year before.

Repairs were made on the old part of the wharf.

The expenditure amounted to $3,482.59.

CANNES DE ROCHES.

Cannes de Roches is a small fishing cove some 5 miles north-west from Percé and 2 miles from Corner of the Beach. All the fishermen from Corner of the Beach and from the falls of Percé seek shelter at Cannes de Roches in stormy weather.

The breakwater of 175 feet, built in 1907, was to be lengthened 100 feet on account of the number of boats to be sheltered. Built ashore, it was launched but could not be secured in position and it had to be beached for the winter.

Expenditure, $2,498.01.

CAP À LA BALEINE.

Cap à la Baleine, on the south shore of the St. Lawrence, in the county of Rimouski, is a small cove situated 12 miles below Matane, it is used as a harbour by fishermen.

During the year ended March 31, 1911, between August 27 and September 7, the sum of $20 was expended in completing the removal of stone which had obstructed the harbour.

CAP À L'AIGLE.

Cap à l'Aigle is situated some 6 miles below Murray bay, in the county of Charlevoix. This place is one of the best frequented summer resorts.

During the present fiscal year, the sheathing of the wharf was nearly all renewed and rock-elm fenders 12 by 12 inches, were placed on the face of this wharf distant 8 feet, centre to centre, with three rows of earling between the fenders; 10 face-timbers were replaced; a new coping was adjusted, and repairs were made to the railing and waiting room, minor repairs were also made to the roof of the freight shed.

The work was commenced on October 18, and completed on November 17, 1910.

A new patent slip hoist was purchased to replace the old winches.

The expenditure for the present fiscal year 1910-11, amounts to $2,269.13.

CAP CHAT.

Cap Chat is the largest and most progressive municipality along the St. Lawrence river shore in the county of Gaspé. The training pier, built at the entrance of the river outlet basin, will have to be lengthened. This year, part of the timber for the extension had to be barked, flatted and properly piled and stone ballast hauled to the site. The flooring was repaired and replaced in several places and 50 feet of the shore end rebuilt.

Expenditure, $1,941.29.

CAP-SANTÉ.

Cap-Santé, the chief town of the county of Portneuf, is situated on the north shore of the river St. Lawrence, 5 miles below Portneuf and 31 miles above Quebec.

Spring tides rise 14½ feet, neap tides, 8½ feet.

During the present fiscal year, urgent minor repairs were made to the wharf from May 20 to 26, 1910.

The expenditure for the present fiscal year 1910-11, amounts to $44.32.

CARLETON.

Carleton, Bonaventure county, is one of the most important places on the north shore of the Baie des Chaleurs and also a renowned summer resort.

During the last fiscal year, the pile-sheathing of the south side of the wharf was continued; 390 piles were driven into the bottom until refusal; some fenders were placed at the south corner of the wharf.

The slip on the north side of the wharf was renewed on a distance of 25 feet by a width of 15 feet, covered with 3-inch deals; nine mooring posts were replaced; 75 feet of cap-timber were also renewed.

The work, which was commenced on the 28th of April, was suspended on 1st May, and was resumed on the 11th August until the 10th of September.

These repairs have been carried out by day labour at a cost of $1,499.91.

CHARLEMAGNE.

Charlemagne, a post village in l'Assomption county, 4 miles from Mascouche and 12 miles from Montreal. It has four stores, one saw-mill, one box factory, telegraph and express office, and three hotels. Population, 722.

From April 18 to May 14, and from July 6 to August 16, 1910, departmental dredge, *No. 3,* worked at Charlemagne, both between the Charlemagne & Lac Ouareau Lumber Co.'s wharf and Ile de la Compagnie, also opposite the temporary wharf on east side of said island.

Some 15,630 cubic yards, scow measurement, of clay and sand were removed.

CHÂTEAU-RICHER.

Château-Richer is a village situated on the north shore of the River St. Lawrence, 15 miles below Quebec; its population is 1,800.

The construction of an extension to the wharf was started during the present fiscal year.

This construction has the following dimensions: length, 100 feet; width, 45 feet; and average height, 26 feet.

Up to this present date, 60 per cent of the construction is completed.

The work was commenced on the 26th September and abandoned on the 16th November, 1910.

The expenditure for the present fiscal year amounts to $4,009.24.

CHICOUTIMI.

The town of Chicoutimi, in the county of the same name, is situated on the south shore of Saguenay river at the head of navigation, 71 miles above Tadousac, and is the terminus of the Quebec and Lake St. John railway. The Richelieu & Ontario Navigation Company has a daily service, between Quebec and Chicoutimi, during the season of navigation, carrying passengers, freight and mail.

During the past fiscal year, eleven ocean steamers were loaded with pulp, which was shipped to England and France.

Two hundred and four thousand three hundred and eighty-seven bales, making a total of 40,876 tons, valued at $403,479.

Owing to heavy shipments to the United States throughout the year, the above figures do not represent the average year by one-fourth to one-third.

The above statement is furnished by the Custom officer.

Wharf Extension.

For details of the construction of the extension, *see* Public Works Report, 1909-10, page 84, part IV.

During the last fiscal year, the work done was the completion of the crib-work, and a portion of earth filling. The extension stands 400 feet long, with a return of 350 feet, with four slips and has 13 iron bollards.

Repairs to Old Wharf.

Some minor repairs were done to the wharf; the open freight shed, with the lantern tower on top, was blown down by a gale of wind; this lantern tower was rebuilt on the roof of the waiting-room.

Spring tides rise 17 feet and neaps 10.

Total expenditure for year 1910-11, is $7,428.11.

CONTRECOEUR.

Contrecoeur, an incorporated village and station on the Quebec, Montreal and Southern railway, in Vercheres county, on the St. Lawrence river. It contains one Roman Catholic church, five stores, one hotel, one saw mill, three cheese and butter factories, telegraph, express and telephone offices and seven schools.

The Ontario and Richelieu Navigation Co's boats call three times per week. A fine aqueduct was inaugurated here in 1903. Population of parish, 1,760.

At the end of October 1910, the improvements to the old Richelieu and Ontario Navigation Co's wharf, bought by the Crown in the spring of 1909, for the sum of $2,000, including adjoining plot of land, were begun.

The old structure was entirely razed to extreme low water level, and a close-faced crib extension 30 feet long outside face and 40 feet wide added at downstream end of headblock.

When completed the wharf will consist of:

1. A close- faced crib headblock 82 feet long outside face (exclusive of icebreaker 14 by 32 feet) 40 feet wide, standing 17 feet high in 6 feet of water at lowest level.

2. A close-faced crib approach 180 feet long, 20 feet wide at top with icebreaker all along.

At the end of December 1911, the work done by day labour was suspended until new appropriation is available with the structure completed up to 4 feet from top. Expenditure, $8,063.91.

COTEAU LANDING.

Coteau Landing, the chief town in the county of Soulanges, situated on the St. Lawrence river, and on the Grand Trunk railway, 1½ miles from Coteau station, 36 miles from Montreal. It contains one Episcopal church, grist-mill, five stores, four hotels, one grain elevator, telegraph and express offices, and is the chief grain shipping port of the county. During summer, it has communication with Montreal by steamer. The Soulanges canal, connecting lakes St. Francis and St. Louis, starting near the Grand Trunk railway bridge at Coteau, and terminating near the junction of the Ottawa and the St. Lawrence, passes in front of the town. This canal

takes the place of the Beauharnois canal, and adds considerable importance to the town. Population, 578.

The Coteau Landing wharf consists of:

1. A close-faced crib headblock 290 feet long, including icebreaker, 25 feet wide, standing 17 feet 10 inches high in 11 feet 4 inches of water at low level.

2. A close-faced crib approach 92 feet 4 inches by 25 feet.

3. A crib and span approach 784 feet 5 inches long, from 12 to 24 feet wide, formed of 26 cribs, timber below and concrete above low water, supporting steel I beams and pine flooring.

4. A freight shed 41 by 20 feet at upstream intersection of headblock and approach.

At the beginning of October, extensive renewals were started: that of renewing, in concrete, the whole outside faces of headblock, this concrete wall to be 3 feet wide at bottom, 1½ at top with two inner retreats, outside face being inclined 1 in 12; the whole reinforced with 1-inch cup bars.

At the end of December, when work was suspended until new appropriation is available, 250 feet of front face, the icebreaker (in 1 foot mass concrete) and 50 feet of inner face of headblock from icebreaker, had been completed.

The work was done by day labour at a cost of $2,387.50.

CÔTE STE. CATHERINE.

Côte Ste. Catherine is a landing place on the south shore of the St. Lawrence, in Laprairie county, about 5 miles west of the town of Laprairie. A steamboat ferry plies daily between this place and Verdun, on the opposite side of the river.

The public wharf at Côte Ste. Catherine, built in 1899-1900, consists of:—

1. A close-faced crib headlock 83 feet long, 20 feet wide, with ice-breaker inclined 1½ in 1 and sunk in 7 feet of water at extreme low level.

2. A close-faced crib approach, 120 by 20 feet, with upstream side protected with riprap sloped 1 in 1.

During October, December and February last, a sum of $799.33 was expended in renewing the top timber of headlock and raising the whole one foot.

CROSS-POINT.

Cross-Point, Bonaventure county, is situated on the north shore of the Restigouche river, opposite the town of Campbellton, N.B. A ferry boat plies between Cross-Point and Campbellton every half an hour.

During the first part of the present fiscal year, the flooring and stringers have been partly repaired and partly renewed on a distance of 455 feet by the full width of the wharf.

Four guide piles were also driven at the head of the wharf; 460 feet of iron pipe railing were placed on both sides of the wharf.

The work has been carried out by day labour at a cost of $405.40.

DESCHAMBAULT.

Deschambault, county of Portneuf, is a flourishing village on the north shore of the River St. Lawrence and on the Canadian Pacific railway, 41 miles above Quebec. A steamer plies semi-weekly to and from Quebec.

During the present fiscal year, urgent minor repairs were made to the wharf and road leading to said wharf, from the 10th to the 15th October, 1910.

The expenditure for the present fiscal year 1910-11, amounts to $16.15.

DORION.

Dorion is a summer resort on the Ottawa river, Vaudreuil bay, immediately upstream of the Canadian Pacific railway and Grand Trunk railway bridge connecting with Ile Perrot. It forms part of the municipality of Vaudreuil.

From August 29 to October 1, and from October 29 to November 19, departmental dredge, *No. 3*, worked at Dorion, opposite S. N. Parent's property; some 10,641 cubic yards, scow measurement, and cast over, of clay and boulders being removed.

Same dredge also worked opposite Mr. G. Deserres' property, removing 369 cubic yards, scow measurement. Total quantity dredged, 11,010 cubic yards.

ESCOUMAINS.

Les Escoumains, in the county of Saguenay, is situated on the north shore of the River St. Lawrence, 21 miles below Tadousac.

During the year 1907-8, repairs were done, by day labour, to the wharf built in the years 1904-05-06.

For details of construction, *see* Report of Public Works, 1906-07, page 99.

On November 23, 1906, a contract for an extension of 200 feet was awarded for the amount of $12,445.

For work done from 1907-8, up to 31st of March, 1910, *see* Report Public Works, 1909-10, page 85, part IV.

During the past fiscal year, a building to be used as a waiting-room and freight shed, was constructed.

Work was commenced on June 19 and completed on August 30, 1910.

Amount of expenditure, $823.29.

Spring tides rise, 15 feet; neaps, 9 feet.

The wharf is to-day 550 feet in length, 25 feet in width, with 13 feet of water at outer end.

Removal of boulders.

During the past fiscal year, the sum of $199, was expended in removing boulders in the channel of the river.

Work was started on June 19, and completed the 30th of the same month.

FABRE.

Fabre village, county of Pontiac, on the east shore of Lake Timiskaming, 11 miles south of Ville-Marie.

To cope with the increasing traffic on the Fabre wharf, built on Lake Timiskaming some years ago, the sum of $2,500 was appropriated by parliament, at its last session, for the purpose of building an extension to the landing head.

During the period, August 25 to September 30, a pilework extension, 48 by 48 feet, was built to a height of 16 feet above Lake Timiskaming, datum (577·5). This extension was built three feet higher than the old structure, braced and fendered, in keeping with the proposed regulatetd water surface, at the elevation 589, on account of Upper Ottawa storage scheme.

Expenditure during the fiscal year $2,817.11.

FASSETT.

Fassett (population 1,000) in the county of Labelle, on the north shore of the Ottawa, located on the Canadian Pacific railway, North shore line, is a centre of lumber industries.

At its last session, parliament appropriated $5,000 towards the construction of a pile work wharf at this place. A site was examined and is being vested in the Crown. A public right of way thereto is being arranged for. Contract plans, specifications, and estimate, were prepared and transmitted. No construction has yet been done. Work is expected to be under way in the early summer.

Expenditure to March 31, nil.

FATHER POINT.

Father Point, in the county of Rimouski, is on the south shore of the St. Lawrence, 6 miles below the town of Rimouski. Most of the ocean liners call there to land or take their pilots. The point is one of the few places on the south shore of the St. Lawrence where deep water can be found at a relatively short distance from shore.

A self-registering tidal gauge was established here some years ago by the Department of Marine and Fisheries. There are a powerful compressed air fog horn, an acetylene gas lighthouse and a Marconi wireless telegraph station.

During the year 1902-3, a deep-water wharf was constructed at Father Point.

Owing to heavy undermining and scouring by the waves, the wharf settled 2½ feet at its outer end since it was constructed. During the last fiscal year, the superstructure of the wharf was raised to the level of the inner end which was undisturbed; 400 feet long was worked over at a cost of $4,359.66.

In order to counteract the action of the waves, a diver was employed 15 days to place large stones along the eastern face of the wharf; the hardwood sheathing was also repaired. A small portable building, 10 feet square, to be removed during the winter, was erected on the outer end of the wharf in connection with the service of the *Eureka*.

The work, commenced on June 14, was completed on October 23.

During a heavy storm in the month of March last, the face-timbers on the east side of the wharf were broken by ice, an opening 10 by 26 feet was made and the stone went out. Immediate repairs were started and at the close of the fiscal year, they were not yet completed.

FORT WILLIAM.

Fort William, county of Pontiac, on the Ottawa river, 14 miles west of Pembroke, is the outlet of an important district for agricultural and forest products. The population in the immediate vicinity is placed at 800. It is a well established summer resort.

At its last session, Parliament appropriated $5,000 towards the construction of a pilework wharf. Contract plans have been prepared, but have not yet been transmitted.

Expenditure to March 31—Nil.

GASPÉ BASIN.

The deep water pier to be built in the outside deep water basin at Adam's Bluff, terminus of the Quebec Atlantic and Western railway, one and one-half miles from Gaspé village, has been commenced during the course of the last summer by the Contractor, Horace Dusseault.

The stone approach and the first crib of 140 by 45 feet have been built and the crib ballasted to coping. The last progress estimate given amounted to $46,160.65.

GATINEAU POINT.

Gatineau Point, county of Wright, is at the intersection of the Gatineau and Ottawa rivers, two miles downstream from Ottawa.

The roadway along the Gatineau Point concrete retaining wall, was ploughed in a strip adjacent to the back fill which was restored by the addition of 25 cubic yards

of gravel, besides, the approach of the low level landing of the wharf was graded June 23rd to 25th.

Expenditure during the fiscal year, $40.

GEORGEVILLE.

Georgeville, a post village in Stanstead county, 9 miles from Smith Mills (10 miles from Memphramagog Lake) which is reached by B. and M. railway, and 10 miles from Magog station, on the Canadian Pacific railway. It is noted for its beautiful scenery and contains two churches (Episcopal and Methodist), five stores, one hotel, telegraph and telephone offices. Population, 300.

The Georgeville wharf consists of:

1. A crib headblock of irregular shape, 75 feet long outside face, from 20 to 42 feet wide, sunk 12 feet high in 6 feet of water.

2. A stone approach 156 feet long and from 20 to 23 feet wide, with sides vertical.

3. A freight shed 24 by 14 feet near northern intersection of approach with headblock.

During July, 1910, the sum of $30.01 was expended in repairing and strengthening the northern outside corner of headblock, which had been damaged by a boat.

GLEN ALMOND.

Glen Almond, the outlet for a small settlement, Labelle county, is situated on the east shore of Lièvre river, 8 miles from Buckingham.

In 1910, Parliament appropriated $3,000 for the construction of wharfs on Lièvre river. A cedar floating landing, 25 by 30 feet was built at Glen Almond (August 29 to September 14), at a cost of $289.33.

GRANDE RIVIERE.

Grand Rivière, county of Gaspé, is the name of an important fishing centre, some 21 miles southwest of Percé.

During the last fiscal year, steel concrete blocks to complete sheathing of ten thousand superficial feet were made but could not be secured in place and had to be stored for winter on account of hoisting engine not being delivered in good time. Diver was employed with helper three weeks to remove obstructions and to fill worst places on outside 300 feet with some four hundred bags of cement. This concrete sheathing will have to be placed in position in early spring and extended some two hundred feet towards shore on inside face; the outside part of the wharf along outside face for a width of ten feet inside of spruce sheet-piling having given away, will have to be filled with concrete bags up to low water level in places that can only be determined after the decking and the stone ballast, down to the first ballast floor, have been removed and the exact damages found.

As mentioned in previous reports, the outside face-timbers eaten by sea worms were carried away by the sea, together with most of the stone ballast in the outer section between the lower and upper ballast floors, spruce sheet piling were placed along-side but they are being carried away on account of the suction of the water that gathered behind in the sections without stone ballast.

Expenditure, $8.257.39.

GRANDE VALLÉE.

Grande Vallée, county of Gaspé, is on the south shore of the River St. Lawrence, 68 miles below St. Anne des Monts and about 45 miles by land from Gaspé Basin.

With a view of affording much needed landing and shipping facilities to steamers, schooners and other small vessels calling at this place, together with the shelter to

fishing boats in stormy weather, it was decided to build a breakwater wharf at this place.

On June 29, 1901, a contract was entered into with Heney and Smith, of Ottawa, for the construction of this wharf near the mouth of Grand Vallée river.

The structure has a length of 900 feet, a width of 25 feet on top at the inner and 29 feet at the outer end, which is in a depth of 14 feet at low water spring tides, built throughout of close-faced timber cribwork, with a batter of 1 in 10 on both sides, filled with stone and sheathed on the weather side with hardwood planks 6 inches thick. The top of the work stands 8 feet above high water spring tides. Spring tides rise 10 feet.

In the fall of 1909, the outside 250 feet were badly damaged, the top structure being carried away and most of the stone ballast thrown inside of the harbour. A diver had to be engaged to remove this stone ballast during the summer months at a cost of $2,166. Some $3,000 worth of timber was bought for proposed repairs. On account of not getting the necessary plan in good time, the repairs could not be proceeded with.

Expenditure, $8,587.78.

GREEN SHOALS.

Green Shoals, opposite East Templeton, in the river 6 miles below Ottawa, forms the worst obstruction to navigation in these waters. There, two distinct rock reef shoals to within 5 feet of E. L. W. L., with shifting sand bars above and below. A contract was entered into with the dredging firm of L. Cohen & Son, on the basis of 15,000 cubic yards of rock and boulders, and 15,000 cubic yards of sand and gravel (scow measure), to be removed from the boat channel.

To keep within the quantities contracted for, a through channel 200 feet wide, 50 feet of which lies to the north of the axis of the proposed ship channel, to bottom grade elevation 117, has been undertaken. As the sand shoals are not as great an obstruction, the contractors have been directed to do the rock work first.

To date, 6,098 cubic yards of solid rock and 90 cubic yards of loose rock (scow measure), has been removed north of the axis, above the lighthouse, in the shallowest portion of the work. During the winter, a survey was made at this place to obtain closely spaced soundings, as a means of checking the inspection during the past season and plotting, more closely, the work performed.

GRONDINES.

Grondines, a post village in the county of Portneuf, is situated on the north shore of the St. Lawrence, 48 miles above Quebec, on the line of the Canadian Pacific railway.

It contains a church, four stores, a saw mill and a telegraph office. Two lighthouses are located at this place. A steamboat from Quebec calls here twice a week. Population of village, 440; population of parish, 1,500.

During the present fiscal year, urgent minor repairs were made to the wharf, during the month of October, 1910.

The expenditure for the present fiscal year 1910-11, amounts to $33.09.

GROSSE-ILE, EASTERN WHARF.

Grosse-Ile is situated in the river St. Lawrence, some 30 miles below Quebec.

It is used by the Government of Canada as a Quarantine station for the steamers coming up the river St. Lawrence.

During the present fiscal year, minor urgent repairs were made to the waiting-room and freight shed, general repairs were also made to the wharf.

The work was commenced on the 1st, and completed on August 12, 1910.

The expenditure for the present fiscal year, amounts to $765.88.

HARRINGTON HARBOUR.

Harrington harbour, in Saguenay county, is situated on the north shore of the Gulf St. Lawrence, 110 miles below Natashquan.

Population about 80 families.

The village of Harrington is built on eight small islands of rock formation, the islands are so situated that they make one of the best harbours of the north coast, there are three good channels leading to the harbour and there is a good anchorage for all kinds of vessels, in all sorts of weather. There are two small churches (Anglican and Methodist), an hospital, and a Marconi wireless station.

The population is composed of fishermen.

The work done during the past twelve months ending March 31, was the completion of the old wharf, that the department has purchased from the 'Labrador Deep Sea Fishermens' Mission'; the old piers were converted into two ice-breaker piers and a portion of the flooring is done.

The wharf to-day stands 230 feet in length, and is situated in a narrow bay, in front of Doctor Hare's residence.

Expenditure, $1,494.98.

The work was done during the month of September, 1910.

HIGH FALLS.

High Falls, Labelle county, is a landing at the head of navigation, on the lower reach of the Lièvre river, 24 miles above Buckingham.

During the past season, the float landing, built some years ago, was maintained at a cost of $25.

HUDSON.

Hudson, a post village in Vaudreuil county, on the River Ottawa and on the Canadian Pacific railway (short line), 9 miles from Vaudreuil and 35 miles from Montreal. It is a landing of the Ottawa steamers and contains one Methodist church, one Roman Catholic church, telegraph, express and telephone offices, one woollen factory, one hotel and two stores. A favourite summer resort for Montrealers. Population, 500.

From July 18, to August 31, and from November 7 to 19, departmental dredge *Nipissing* worked at Hudson; during the first period, opposite the ice houses where some 8,150 cubic yards scow measurement of boulders and hard pan were removed, and during the second period, opposite the public wharf where 465 cubic yards scow measurement of clay and boulders were dredged out. Total quantity 8,615 cubic yards, scow measurement.

HULL.

The departmental dredge *Nipissing* worked at Hull, on the Ottawa river (May 16 to 26), making two cuts 133 and 301 lineal feet, respectively.

3,330 cubic yards of saw-dust, pulp, bark and other refuse (scow measure), was removed to a grade depth of 10 feet and spoiled in deep water, one mile downstream. The improvement was required to facilitate floating of pulp wood logs to the E. B. Eddy Co's sulphite mill.

IBERVILLE.

Iberville, an incorporated town in the county of the same name, on the Richelieu river and on the Central Vermont railway, and the Canadian Pacific railway, opposite the town of St. Johns. It contains two churches (Episcopal and Roman Catholic), thirteen stores, two iron foundries, seven hotels, three potteries, one grist mill and two agricultural implement factories, monumental works, carriage shop, two bank agencies, telegraph and express offices. Population, 1,512.

The Iberville wharf, built in 1899-1900, consists of:—

1. A pile headblock 145 by 40 feet with two slips and an inner guard railing standing 15 feet high in 7 feet of water at the lowest level. On this is constructed a horse derrick to facilitate freight handling.

2. A trestle approach 150 feet by 24 feet with guard railing on both sides.

3. A stone embankment 130 by 24 feet with guard railing and slopes rip-rapped 1 in 1.

4. A store-house 20 by 24 feet on head block.

During August and September, 1910, the sum of $1,472.35 was expended in renewing the whole of the flooring in 3-inch pine and tamarack, and in replacing the major part of the stringers. The work was done by day labour.

ILE PERROT.

Ile Perrot, a post office in Vaudreuil county, 3 miles from Ste-Anne de Bellevue, a station on the short line, Montreal and Ottawa division of the Canadian Pacific railway and Grand Trunk railway, 21 miles west of Montreal.

The Ile Perrot South public wharf, built by contract in 1886-90, consists of:—

1. A crib headblock 118 feet 8 inches by 30 feet with a return 34 by 16 feet in rear of east end and ice-breaker, outside face sunk into 8 feet of water at lowest level.

2. An approach 407 by 24 feet formed of 9 cribs and spans varying from 12 to 25 feet, with guard railing on both sides.

3. A stone approach 203 by 16 feet with sides rip-rapped and sloped 1 in 1.

4. A freight shed 16 by 20 feet.

Repairs were begun June 1, 1910, suspended June 30; resumed for a few days in October, and suspended until further orders from Ottawa. A sum of $939.22 was expended in renewing two rows of 12 by 12-inch timber of headblock; in placing corner steel plates, and in minor improvements. Work was done by day labour.

ILE VERTE.

The village of Ile Verte, in the county of Temiscouata, is situated on the south shore of the St. Lawrence, 16 miles below River du Loup and 130 miles east of Quebec.

Spring tides rise 19 feet; neaps, 12 feet.

The repairs to the wharf begun two years ago, continued the year after, were resumed during the last fiscal year, but could not be completed owing to a want of appropriation.

The superstructure of the wharf was entirely rebuilt on a length of 150 feet and a mean height of 4 feet, width of wharf, 22 feet.

A double flooring was placed on a length of 326 feet by 11 feet wide with spruce deals 3 inches thick.

The work was performed between the 27th of June and the 28th of August.

Expenditure, $1,500.

KAMOURASKA.

The village of Kamouraska, in the county of same name, is situated on the south side of the St. Lawrence, 90 miles below Quebec; it is a well known place, much frequented as a summer resort. Spring tides rise 19·5 feet; neaps, 12 feet.

The repairs done to the wharf during the last fiscal year are the following:—

The flooring and most of the stringers were renewed on a surface of 6,500 square feet, and the planking of the slip was repaired. Repairs were also done to the planking of the whole wharf and to the spruce sheathing.

The west face of the old block, which is used as a shelter, was sheathed on a length of 100 feet and a height of 19 feet, with spruce 4 inches thick.

These works were performed between the 1st of July and the 15th of August, and from the 7th to the 27th of November.

These expenditures amounted to $973.91.

KNOWLTON LANDING.

Knowlton Landing, a post village in Brome county, on Lake Memphremagog, and a port of call of the steamers plying on the lake, 8 miles from Magog station on the Canadian Pacific railway, with which it is connected by steamer.

The Knowlton Landing wharf consists of:

1. A pile headblock 75½ feet long outside face, 25 feet wide for 39 feet, and 51 feet for the remaining 36½ feet, standing 18 feet high in 12 feet of water at low level.

2. A stone approach 126 feet long and 20 feet wide at top with sides rip-rapped and sloped 1 in 1 and pipe guard railed.

3. An open shed 27 by 22 feet with adjoining waiting room 13 by 22 feet on shore.

During June, 1910, a sum of $84.75 was expended in adding seven elm fender piles in front of headblock and in repairing part of flooring.

LAC AUX ECORCES.

Lac aux Ecorces, Labelle county, is on the Canadian Pacific railway, and is the terminus of navigation, 10 miles from St. François Régis, on Kiamika river.

At its last session, parliament appropriated $1,300 towards the construction of a wharf. Construction of the proposed wharf was conditional on the establishment of a regular traffic boat, which did not materialize during the past season. It was thought advisable, therefore, to defer construction until the promised boat would make its appearance, or, until a responsible guarantee to such effect would be made.

Expenditure in 1910-11, nil.

LAKE ST. JOHN DREDGING.

Lake St. John dredging is done by the departmental dredging plant dredge, *Lac St. Jean,* and assisted by tug, *Marie-Louise.*

The work done during the past fiscal year was at St. Félicien, on the Ashouapmouchouan river, at about 7 miles from Lake St. John, and at 1¼ miles from the village; this dredging is done to improve the channel of the river.

Quantity of material removed, 12,500 cubic yards.

The dredging was done to an average depth of 6 feet, for a length of 1,600 feet.

Amount expended, $3,017.04.

LAPRAIRIE.

Laprairie, a town in Laprairie county, on the south shore of the St. Lawrence, and a station on the Grand Trunk railway. It contains two churches (Presbyterian and Roman Catholic), eight stores, six hotels, saw and carding mills, one brickyard, one tomato cannery, one agricultural implement factory, two butter factories, post office, savings bank, branch of Banque d'Hochelaga, telegraph, telephone and express offices. It is a beautiful spot near the Lachine rapids, much frequented in summer. Communication with Montreal twice a day by railway, and four times a day by steamer. Population, 10,451.

At the end of September, 1910, the reconstruction of Laprairie wharf was begun by day labour. The face timbers of old headblock were razed down to one foot above extreme low water level, and rebuilt in concrete. This wall is 113 feet long, outside face, with a 21 and 30 feet return wing upstream and a 60 foot wing downstream. It is 4 feet thick at base, 18 inches at top with inner retreats, 9 feet high, and reinforced with vertical and horizontal 1-inch cup bars, and there are two slips.

Concrete work was completed at the end of November.

During the winter, stone was delivered on the wharf, which will be raised 2½ feet. Total expenditure, $7,822.80.

The work was done by day labour.

The covering of whole wharf in 6-inch concrete flooring will be done next year.

Protection Works.

At the beginning of October, 1910, some protection works were begun at Laprairie, between the town and Little River St. James, a distance of 3,800 feet. It consisted in raising, with earth, the shore road 6 feet so as to form a dyke, 24 feet wide at top with sides sloped 1 in 1, river slope being rip-rapped, with joints cemented.

On March 31, the dyke was about 75 per cent completed, the rip-rapping and cementing of river slope remaining to be done.

Expenditure, $10,639.80. Work was done by day labour.

LA SALETTE.

La Salette, a village in Labelle county, is on the east bank of Lièvre river, 18 miles above Buckingham.

The float landing, built here in 1908, was completed by the addition of a freight shed moved from the temporary site of the latter, and by further improving the basin previously improved by dredge *No. 2*, at the foot of the public roadway, April 9 to May 10, at a cost of $100.57.

Under an agreement with Captain George Bothwell, the traffic was maintained April 20 to August 13, past the landslide, at a cost of $815; and the balance of rental on the Lauzon property, used for temporary site to May 1, 1910, amounting to $20.83, was paid.

Maintenance of the float landing during the past season entailed a cost of $25.

Dredging.

The Departmental dredge *No. 2*, worked at La Salette, on the Lièvre river (May 13 to August 16), making five cuts aggregating 2,126 lineal feet. Two parallel cuts 1,116 and 703 lineal feet, respectively, and 30 feet in width being in the main channel. One cut, 121 feet long and 30 feet wide, being to widen the channel opposite the boat landing. The balance of the work being located at the lower entrance of the boat channel.

13,389 cubic yards of clay (scow measure) was removed to a grade depth of 10 feet and spoiled one-half mile below the landslide. The work being a continuation of the improvements required to restore navigation destroyed at La Salette by the landslide of April 26, 1908.

L'ASSOMPTION ICE-PIER.

L'Assomption, a town in l'Assomption county, on the Canadian Northern railway, 20 miles north of Montreal. It has one Roman Catholic church, college and convent, twenty-five stores, three hotels, three moulding factories, one foundry, one bank and one printing office, besides express and telegraph office. Population, 1,650.

On December 3, 1910, a contract was entered into between the Crown and Mr. Joseph Renaud for the construction of an ice-pier in River l'Assomption, opposite the town of l'Assomption. The pier to be composed of:—

1. A substructure of 54 spruce or pine piles driven into the ground and razed to the river bed level.

2. A reinforced concrete superstructure 43 feet 8 inches extreme length and 12 feet 8 inches extreme width at bottom; 25½ feet extreme length and 7 feet extreme

width at the top and 34 feet high, with upstream face nosed 90 degrees and covered with ¼-inch 6 by 28 foot steel plate. Contract price $4,910.

Between February 28 and March 7, 1911, all the piles were driven in and work suspended until low water.

LAVALTRIE.

Lavaltrie, a post village in Berthier county, on the St. Lawrence river, 8 miles from Lavaltrie road station, on the Canadian Pacific railway, 44 miles northeast of Montreal. It has one Roman Catholic church, five stores, one hotel, saw and flour mills, three butter factories, with express and telegraph office at Lavaltrie station. Population, 998.

May 12 and 13, 1910, departmental dredge *St. Louis* worked at Lavaltrie, enlarging basin adjoining public wharf. Some 448 cubic yards scow measurement of clay and sand were removed.

From May 16 to 31, departmental dredge *No. 3* also worked on the same spot. Some 3,947 cubic yards, scow measurement, being dredged out. Total quantity 4,395 cubic yards

LES EBOULEMENTS.

This village is situated on the north shore of the river St. Lawrence in the county of Charlevoix, 70 miles below Quebec.

During the present fiscal year, the waiting room and freight shed, built last year, was given three coats of paint.

During the fall 1910, the Steamer *Murray Bay* of the Richelieu and Ontario Navigation Company, struck the wharf with her bow and made an opening of two feet into said wharf on a height of 15 feet; this, of course, had to be patched in for the winter in order that the wharf might not be demolished during the ice season. Instead of going on with repairs for which money had been voted at the last session of parliament, part of said money was taken to effect the most urgent repairs to the damaged portion of the wharf.

The work was commenced on the 1st September, 1910, and completed on the 6th December, 1910.

A new patent slip hoist was purchased to replace the old winches.

The expenditure for the present fiscal year 1910--11, amounts to $1,419.

LÉVIS.

Lévis is situated on the north shore of the River St. Lawrence, opposite Quebec.

During the present fiscal year, on the 8th August, a contract was entered into between this department and Mr. Horace Dussault, for the construction of a deep-water wharf at Lévis for the sum of $285,064.50. The work was started on the 22nd August, 1910, and up to the 31st March, 1911, the following work was executed: removing old wharfs, 2,110 cubic yards; common excavation, 4,841 cubic yards; shale excavation, 10,387 cubic yards; rock excavation, 3,022 cubic yards; earth filling, 679 cubic yards.

The construction of crib No. 2 was started and is nearly completed. The following amount of materials was received:

101,000 cubic feet of spruce 12 by 12-inch; 31,300 cubic feet of oak 12 by 12-inch; 4,460 cubic feet of spruce 40 foot lengths; 46,873 cubic feet of hemlock, spruce, 10, 20 and 30 foot lengths.

The expenditure for the present fiscal year 1910-11, amounts to $54,875.39.

L'ISLET.

The village of L'Islet, in the county of the same name, is situated on the north shore of the St. Lawrence, 50 miles below Quebec. Spring tides rise 21 feet; neaps, 13 feet.

The wharf has a length of 1,105 feet, and a width of 31 feet, with a headblock 116 feet wide. This wharf was substantially built with close-faced cribwork, but will nevertheless require heavy repairs in the near future; the superstructure is now in an advanced state of decay.

During the fiscal year ended the 31st of March, 1911, some temporary repairs were performed to keep the wharf open to traffic. Twelve mooring posts and 35 feet long of capping pieces were replaced; 8,545 feet B.M. spruce deals, three inches thick, were used to repair the flooring, and some other small repairs were done on the wharf.

These works were performed during the month of July at a cost of $372.13.

LOTBINIERE.

A special grant out of the appropriation, harbours, Quebec, of $200; was expended in renewing broken and decayed portions of deck timbers on the landing pier, also for replacing fenders, guard-rails, side stairs, &c., on wharf.

LYNCH ISLAND.

Lynch or Dowker island is situated in Lake St. Louis, River St. Lawrence, between the Island of Montreal and Ile Perrot, some 3½ miles east of Ste. Anne de Bellevue.

From June 30 to August 27, 1910, departmental dredge, *No. 5,* worked in channel opposite Lynch island, removing 7,261 cubic yards, scow measurement, of boulders and hard pan.

From August 31 to September 24, departmental dredge, *Nipissing,* also worked at this place, removing 5,670 cubic yards, scow measurement of same material.

Total quantity removed, 12,931 cubic yards, scow measurement.

MAGOG.

Magog, a progressive incorporated town in Stanstead county, on the Magog river, at the northern end of Lake Memphremagog. Steamers on the latter make daily trips in the navigation season between Newport, Vt., and Magog. It is a station on the Canadian Pacific railway, 88 miles east of Montreal and 18 miles southwest of Sherbrooke. It has four churches (Episcopal, Roman Catholic, Methodist and Union), twenty-five stores, four hotels, one large saw and grist-mill, one sash and door factory, one bank (Eastern Township), one printing and newspaper office (*Enterprise*), weekly newspaper, besides express, telegraph and telephone offices, mayor's office, schools, good fire department, &c. Population, about 3,500.

The Magog public wharf consists of:—

1. A pile headblock, 154 feet long and 41 feet 7 inches wide.
2. A pile approach, 50 by 24 feet, with iron pipe and cedar post railing on both sides.
3. A stone approach, making an angle with preceding, 373 feet long and 25 feet wide at top, with sides rip-rapped and guard railed.
4. A store house, 20 by 12 feet on headblock.

During July, September, October and November, 1910, the sum of $192.82 was expended in renewing some 3,500 feet, B.M., of 3-inch flooring, and replacing 3 fender piles and four guard railing posts.

The shed was also repaired, the guard railing painted and two cast-iron nigger heads added on headblock. Work was done by day labour.

MARIA.

Maria, a prosperous village on the north shore of the Baie des Chaleurs, county of Bonaventure, is a station of the Quebec and Oriental railroad, about 10 miles northeast of Carleton. Population, 2,300.

During the last fiscal year, a contract was entered into with Messrs. Peter Nadeau & Sons for the construction and the completion of an extension to the present wharf, of 300 feet long by 30 feet wide, at the price of $11,993.35.

It is a round timber construction of the usual type, sheathed with piles 35 feet long, ballasted with stone and floored with 4-inch deals.

The work was commenced on the 23rd of February.

MASKINONGÉ RIVER.

The river Maskinongé flows through the county of the same name, and empties into the St. Lawrence, on its northern shore, into Lake St. Peter, above Three Rivers.

From October 17 to November 17, 1910, dredge *St. Louis,* belonging to the department, worked at section 15,000 feet above the outlet, to remove the shoal obstructing navigation at low water, where 3,898 cubic yards were removed, for a distance of 791 lineal feet.

MILLE-VACHES.

Mille-Vaches is a village in the county of Saguenay, situated on the north shore of the river St. Lawrence, about 42 miles below Tadousac.

The work done during the past fiscal year consisted in the removal of boulders in the channel reaching the wharf.

Work started on August 13, and was completed on September 16, 1910.

Amount expended, $609.17.

MISTOOK.

Mistook, in the township of Delisle, is situated on La Grande Décharge of Lake St. John, in the county of Chicoutimi. It is also called St. Cœur de Marie.

For details of repairs from 1908-9 to 1909-10, see Report, Department of Public Works, 1909-10, page 94, part IV.

During the past fiscal year, 1910-11, the sum of $999.45, was expended in completing the intermediate pier, 25 feet in length and 25 feet in width; this work was commenced last year.

Work started July 21, and completed August 1, and was done by day labour.

MONTEBELLO.

Montebello (population 2,500) Labelle county, on the north shore of the Ottawa river, a station on the Canadian Pacific railway, is the centre of farming and lumber industries.

The sum of $9,000 was granted by parliament, at its last session, for a public wharf at this place.

During the past season, the required site has been acquired, and some dredging to improve the approaches to the proposed structure was performed. Contract plan estimate and specifications have been prepared and transmitted.

Expenditure for 1910-11, Nil.

Dredging.

The departmental dredge *Nipissing* worked at Montebello, on the Ottawa river (June 2 to 18), making two cuts, each 265 lineal feet, 27 feet wide, to a grade depth of 10 feet, to improve the approaches to the proposed government wharf.

6,570 cubic yards of clay and boulders (scow measure) was removed, and spoiled in deep water nearby.

MONT LOUIS.

Mont Louis, a village of considerable importance, and the first municipality below Ste. Anne des Monts, is 135 miles below Metis, the nearest Intercolonial railway station.

The harbour of Mont Louis, the largest and best situated on the St. Lawrence, Gaspé coast, offers good water and protection against all except northerly winds.

During the last fiscal year, the outside end of the wharf was repaired and some 350 cubic yards of ballast were placed in the outside crib. The approach was repaired and some 200 feet of new roadway built along cliff.

Expenditure $603.15.

MONTMAGNY.

Montmagny, in the county of the same name, is on the south shore of the St. Lawrence, 37 miles below Quebec.

It is a thriving little town of about 3,000 inhabitants.

Important shippings of lumber are made by the Price Bros. & Co., and other firms, to European markets. Besides a pulp mill, there are also two foundries and iron works. The town is built on both sides of Rivière du Sud which empties into the St. Lawrence, with a perpendicular fall of 20 feet. Below the fall, the river expands and forms what is called the 'basin,' affording shelter for vessels of moderate draught.

At the northwest extremity of the basin stands one of the government's wharfs; is chiefly used for service by small boats of Grosse Ile quarantine and other opposite islands. The other wharf is located in the rear end of the basin.

During the fiscal year, some repairs were made to the outside wharf. The stringers, flooring and cap pieces were renewed on the whole surface of the wharf, 200 by 30 feet; the hardwood sheathing on the outer face was repaired and two ladders were replaced.

The waiting room, standing at the shore end of the wharf, has been repaired and was given two coats of paint.

400 feet in length of sidewalk was built on the approach to the wharf.

These works were carried on from the 20th of May to the 20th of July.

Dredging.

During the season 1910, some dredging was carried on by contract by L. Cohen & Sons Co., of Montreal, who used the spoon dredge *Nehoc.*

The dredging was done in the basin which is formed by the Rivière du Sud emptying into the St. Lawrence, and consisted in removing shoals interfering with the approach to the wharfs. The work was commenced on August the 22nd and completed November the 9th, and 28,505 cubic yards were removed. The material excavated being silty clay mixed with small boulders.

The expenditure amounted to $10,157.50, and the dredging performed improved, to a great extent, the Montmagny harbour.

MURRAY BAY.

Murray Bay is situated in the county of Charlevoix, on the north shore of the River St. Lawrence, 83 miles below Quebec.

During the present fiscal year, minor repairs were made to the flooring of the wharf; repairs to the freight shed and waiting room, and the coal shed was thoroughly repaired.

The expenditure for the present fiscal year 1910-11, amounts to $2,436.29.

NATASHQUAN.

Natashquan, on the north shore of Gulf St. Lawrence, is situated 75 miles below Esquimaux Point, in Saguenay county.

During the fiscal year 1909-10, the sum of $1,998.80 was expended for the purchasing of 13,920 feet of timber of 12 inches diameter, in view of the construction of a wharf at that place.

On the 1st of September, 1910, a contract for the construction of a wharf was awarded to G. R. Phillips, of Cornwall, Ontario, for the sum of $17,250.

The proposed wharf will be 400 feet long by 30 in width. No work was done.

NEW CARLISLE.

New Carlisle, the shiretown of the county of Bonaventure, is situated on the north shore of the Baie des Chaleurs, 65 miles from Campbellton, N.B. It contains three churches, two hotels, several stores, telegraph and telephone offices. It is the terminus of the Quebec Oriental railroad and the starting point of the Quebec and Western railroad.

During the last fiscal year, the stringers and flooring of approach and the shore end of the old portion of the wharf have been entirely renewed. Three hundred and forty-four feet of wooden guard have been replaced; a new freight shed, 15 by 25 feet, has been built on the crib constructed in 1909-10; this shed is finished with two plies of board, of which one is clap-board, roofed with No. 1 shingles, windows protected with iron bars, and the whole painted with three coats of paint. The old shed on the approach has also been repaired and painted, foundations were renewed, a waiting-room for passengers has also been provided for; 75 feet of new sheathing have been placed; the slip on the east side of the wharf has been filled with 12½ cubic yards of stone and floored anew; gangway, sheathed with 3-inch deals on both sides, of 9 by 4 feet; 327 feet of cap-timbers, replaced; two new mooring posts of 12 feet long by 14-inch in diameter, laid on; 344 feet of railing have been dressed, replaced and painted; 2 steel corner plates have also been bought at a cost of $100, but were delivered too late to be laid on last fall.

The whole work has been carried out by day labour, at the cost of $2,480.73. It was commenced on the 15th of June and suspended on the 26th of October.

NEW RICHMOND.

New Richmond, Bonaventure county, is situated on the north shore of the Baie des Chaleurs, some 60 miles from Matapedia, and is a station of the Quebec and Oriental railroad.

On August the 8th, a contract was entered into with Mr. John Burns, for the construction of an extension of 150 feet long by 30 feet wide, to the present landing stage.

It is a round timber construction of the usual type, sheathed with piles 35 feet long driven close together, and covered with 3-inch deals.

The amount of contract is $5,933.

The construction was started on January 9; at the close of the last fiscal year, the sum of $3,538.93 had been expended.

NORTH HATLEY.

North Hatley, a post village in Stanstead county, attractively situated at the outlet of Lake Massawippi, east of Lake Memphremagog, a station on the Boston and Maine railroad (Passumpsic division), 12 miles south of Sherbrooke. It has four churches (Roman Catholic, Episcopal, Baptist and Universalist), eight stores, one temperance hotel, five summer hotels, one branch bank, one saw-mill, one sash and

door factory, one pork and lard factory, one public library, one public hall, five schools and a model school, one blacksmith shop, besides telegraph and express offices. The village and vicinity has become a favourite summer resort, attracting as many as 1,500, drawn from Canadian and American cities during the season, and some hundred of whom occupy residences of their own in the village. Population (normal), 300.

On March 14, 1911, the construction, by day labour, was begun of the landing pier at North Hatley, opposite the Boston and Maine Railroad freight shed. The work to consist in:—

1. A crib headblock, 50 by 30 feet, open-faced under water and 10 by 10 inch close-faced above, standing 12 feet high in 8 feet of water at lowest level.

2. A crib and stone approach, 50 by 50 feet.

3. An open shed on headblock.

On March 31, all the crib work had been completed and the stone approach about 75 per cent so.

The expenditure for the year is $2,034.13.

NORWAY BAY.

Norway Bay, Pontiac county, is a summer resort of some importance, on the north shore of Chats lake, on the Ottawa river.

The appropriation of $3,000 for a wharf at Norway Bay has not been used owing to local differences in connection with the question of a site, which had again to be changed. Contract plans now ready for pilework wharf, to be erected during the coming season. The balance of timber, &c., left over from the original Arnprior wharf project, was cribbed and floated across Chats lake to Norway Bay, at a cost of $9.50, with a view of using these materials in the proposed wharf.

PABOS MILLS.

The old breakwater, badly damaged a year ago, had to be repaired the full length of the outside face, for a length of ninety feet, three tiers of face-timbers had to be renewed and the sheathing replaced.

Expenditure $464.48.

PAPINEAUVILLE.

Papineauville, county of Labelle, is a town of some importance, on the north shore of the Ottawa river, 37 miles below Ottawa city, on the Canadian Pacific railway, north shore line.

At its last session, parliament granted $5,000 towards the construction of a wharf. The only site available for a wharf, on which there was an old structure, was acquired at a cost of $1,200. Plans have been prepared and will be transmitted shortly.

Expenditure to March 31, $1,200.

Dredging.

The departmental dredge *Nipissing* worked at Papineauville, on the Ottawa river (May 30 to 31), making two cuts 186 and 160 feet, respectively, to a grade depth of 10 feet.

810 cubic yards of clay (scow measure) was removed and spoiled in deep water close by, the improvement being made to ease the approach to the proposed government wharf.

PASPEBIAC.

Paspebiac, a sea-port and a port of entry, is also the most important fishing station of the county of Bonaventure. It has been for over a century and is still now the headquarters of the great fishing firm of Robin, Jones & Whitman Company.

During the first part of the present fiscal year, a freight shed 30 by 15 feet had been built. It is a strong construction, sheathed inside with a tongued and grooved inch board, shingle roofed, sheathed outside with first-class clapboard (Niagara style), painted with three coats of paint; a waiting room for passengers has been provided in the building.

The work, which has been carried out by day labour, was commenced on June 15, and completed on August 1.

Amount expended $499.06.

PASPEBIAC EAST, (Portage).

Paspebiac East, also called Portage, Bonaventure county, is the most advantageous position for mooring fishing vessels, situated ¾-mile eastward of the bank of Paspebiac; it is the meeting place of all the fishermen of the coast.

On December 14, a contract was entered into with Messrs. Peter Nadeau & Sons, for the construction and completion of a breakwater at Paspebiac East (Portage), at the cost of $15,722.73.

The proposed breakwater will be a construction 700 feet long, by 20 feet wide. The outer end on a distance of 52 feet will be protected with piles 35 feet long, driven close together. The balance of the work will be sheathed with 4-inch spruce planks, and the whole construction covered with 3-inch deals.

During the last fiscal year, the sum of $4,693.58 has been expended for materials delivered on the site of the work.

The work will commence as soon as the weather permits.

PERCÉ.

Percé, the county town, is situated on the Gulf of St. Lawrence, 36 miles from Gaspé.

The pier that had been cut at the head by a steamer and then badly damaged by the fall storms had to be repaired and raised 18 inches for a length of 295 feet.

A new slip was built and the doors, steps and platforms around shed had to be repaired and rebuilt in places as they had been damaged by sea.

Expenditure, $2,037.19.

PÉRIBONKA.

Péribonka is situated on the north shore of the river of the same name, in Chicoutimi county; the River Péribonka is a tributary of Lake St. John, and is navigable up to Honfleur. Boats ply between Roberval and Hanfleur.

The work done during the past fiscal year consists in the construction of a wharf on pile work. The wharf is 380 feet long, including the approach. The approach is 20 feet wide. The wharf is 70 feet wide at the head, with three landings, one at 6 feet above low water, the second 12 feet, and the third 18 feet with incline; the two first have an incline 15 feet wide. The whole is built on piles, of which 140 were driven, at not less than 12 feet in the ground. The cap piece, corbels, and stringers are placed; one of the slips is planked with 4-inch deals.

During the winter, a part of the flooring and also a part of the sheathing was done.

Work was started on the 29th of June, stopped on the 29th of October, and started again later and the work was completed on the 7th of February, 1911.

Amount of expenditure, $2,406.57.

PERKINS' LANDING.

Perkin's Landing, a port of call on Lake Memphremagog of the steamer *Lady of the Lake*, in Brome county, 7 miles from Knowlton.

Extensive additions and improvements to old wharf at Perkins' were begun in the month of August, 1910. The old pile wharf was entirely surrounded with a 10 foot close-faced and stone ballasted crib, 99 feet long, outside face with 46 feet return wings. The approach is stone and earth, 200 feet long and 20 feet wide at top with sides riprapped 1 in 1 and guard-railed. Outside face of wharf standing 14 feet high in 8 feet of water at lowest level.

The wharf proper was completed at the end of November. During February and March following, a small closed shed, 14 by 24 feet, was built on headblock, and the whole work completed. Total expenditure, $4,020.64.

PETITE DÉCHARGE.

Petite Décharge, from Lake St. John, in the parish of St. Joseph d'Alma, is situated 3 miles from the lake, and 7 miles from the village.

An amount of $969.53, was expended during the past fiscal year to continue the blasting, in a narrow pass about ½-mile from the village of St. Joseph d'Alma; this work is done in view of preventing floods in the spring.

Work started on July 23 and completed on September 19, 1910.

PETIT SAGUENAY RIVER.

Petit Saguenay river, on the west side of the Saguenay river, Saguenay county, is situated 19 miles from the mouth of the Saguenay. The inhabitants of Petit Saguenay river, belong to the parish of l'Anse St. Jean.

For the accommodation of the people of Petit Saguenay river, an appropriation of $1,000 was voted towards the construction of a new wharf. The work done consists of a pier, 30 by 20, and 19 feet high; an approach on trestle, 40 feet in length by 30 feet wide. Part of the stringers are laid, the sheathing and the planking remain to be done.

Work started September 1 and completed October 27, 1910.

PHILLIPSBURG EAST.

Phillipsburg East, originally Missisquoi Bay, an incorporated village of Quebec, Missisquoi county, on the east shore of Missisquoi bay, 2 miles from St. Armand station, on the Central Vermont railway and on the Phillipsburg railway. It has two churches (Episcopal and Methodist), two stores, two schools, two hotels, one grist and prepared food mill, one branch bank (Eastern Townships), besides marble quarries operated in the neighbourhood. Population, 300.

The public wharf at Phillipsburg, built by contract in 1895-97, consists of:—

1. A close-faced crib headblock, 120 by 25 feet, standing 23 feet high in 13 feet of water at low level.
2. A trestle approach, 296 by 30 feet.
3. A stone approach, 285 by 30 feet, with sides riprapped 1 in 3.

At the beginning of November, 1910, repairs were begun to headblock. The three upper tiers of northern side were rebuilt and the corner strengthened by vertical posts and steel plates, the whole front sheathing renewed in 6-inch hemlock, and the capping and part of flooring and stone approach improved.

Repairs completed in the middle of March, with an expenditure of $597.97. Work was done by day labour.

PICHÉ POINT.

Piché Point, Pontiac county, on the Quebec shore of Lake Temiskaming, opposite Haileybury, is the landing for Guiges township, a prosperous farming district which supplies the mining region on the Ontario side.

At its last session, parliament granted $2,000 for repairs to the wharf and towards the construction of two ice-breakers, 22 by 44 feet and 16 by 20 feet, respectively, to protect the south face of dock. Some preliminary work and repairs were performed in July and during the period, August 6 to 24. Ice-breakers and three-ply boom were completed in March, 1911. Owing to raised water surface on the lake, during the past winter, the completion of pilework ice-breakers, mostly under water, proved more costly than had been anticipated for the same work under normal low water conditions.

Expenditure during the fiscal year, $1,977.32.

POINTE À BROUSSEAU.

Pointe à Brousseau is the west point of the municipality of Chlorydorme, 190 miles below Metis on the St. Lawrence river. The Point partly protects a very good fishing harbour except at time of spring tides, and the work under way is to complete the protection of said harbour by building from Pointe à Brousseau cape, a breakwater over the shoals to the deep water entrance.

The protection work, started last year, was extended one hundred and twenty-five feet and completed towards shore by an approach giving access for teams from either side. Forty thousand six hundred cubic feet of work were done this year and 5,450 lineal feet of timber was used. The balance of the timber had to be barked and properly piled up.

Spring tides rise 10 feet.

Expenditure $2,420.92.

POINTE À ELIE.

Pointe à Elie is the extreme south-easterly point of Allright island, 2 miles east of the House Harbour Catholic church.

The steamer *Lady Sybil* calls at Pointe à Elie for mails and freight and for shelter during north-easterly gales.

The construction of a landing pier and breakwater will give the best of shelter for all storms especially from easterly gales that prevail in the spring.

During the fiscal year, the crib commenced last year was completed, secured into position and built up to coping. A new crib of 100 feet was commenced on shore to be placed in position next spring, and the timber partly prepared for the next crib, one thousand yards of stone and earth had to be removed to level and open up the approach along the cliff. Six hundred yards of stone ballast was taken out ready for use.

The timber, that is: 430 pieces of an average length of 25 feet of round spruce timbers; 240 pieces of 12 by 12, and three hundred and thirty-five feet of 10 by 12 square spruce timber had to be properly skidded and placed in safety for the winter.

The total length of the pier, completed from the roadway out, is 676 feet, 31 feet wide on top at outside end with 18 feet of water at low tide. The total length of roadway and approach is 1,646 (676+970) feet. A wing of 40 feet long by 9 feet high for protecton had to be built on the east side, and a wall of 65 feet long by 3½ feet high was also built along the coping to prevent the surf from washing over the pier at each easterly breeze.

Expenditure $9,994.77.

POINTE AUX ESQUIMAUX.

Pointe aux Esquimaux, in the united counties of Chicoutimi and Saguenay, is situated on the north shore of the St. Lawrence river, 525 miles below Quebec.

Pointe aux Esquimaux is the chef-lieu of the north shore, and the most important trading post of that region for fur, fish and oil.

An extension to the present wharf was commenced during the past fiscal year, a pier 30 feet in length, by 30 feet in width at the top, and 45 feet at the bottom, was sunk on the west side, is built above low water, and partly filled in with stone ballast.

Work started on August 17, and ended November 30, 1910.

Amount of expenditure $5,069.57.

POINTE-AUX-TREMBLES, (en bas).

Pointe-aux-Trembles is situated in the county of Portneuf on the north shore of the river St. Lawrence, some 20 miles above Quebec.

During the present fiscal year, a freight-shed and a waiting-room were constructed. This building is surmounted by a lantern tower, the dimensions of said building are as follows: length 40 feet; width 28 feet.

One big boulder lying near the outside face of the wharf which was very dangerous for navigation was removed by blasting. This boulder had the following dimensions: 10 feet height above the bottom, 8 feet wide and 12 feet long, and was standing in 8 feet of water.

The movable slip of the wharf, which had been broken, was thoroughly repaired.

The above-mentioned repairs were commenced on August 17, 1910, and completed on the 20th of the same month.

The removal of the boulder, by blasting, was done from October 14 to November 15, 1910.

A railing was placed on both sides of the wharf; this work was done from March 28 to 30, 1911.

The expenditure for the present fiscal year 1910-11, amounts to $1,825.71.

POINTE AUX TREMBLES.

Pointe aux Trembles (en Haut), a post village in Laval county on the island of Montreal, 10 miles from Montreal, and can be reached by electric car trams. It contains one Roman Catholic church, one French Protestant college for boys and girls, under the auspices of the Presbyterian Church of Canada, three stores, three hotels, besides telephone office. There is an excellent rifle range half a mile from the village. Population, 876.

Work on the Pointe aux Trembles public wharf, begun in 1909, was continued this autumn.

The structure is composed of:

1. A close-faced crib headblock 48 by 30 feet standing 21 feet high in 10 feet of water at lowest level.

2. A close-faced crib approach 68 by 25 feet, leading to public road.

During October, November and December, 1910, in order to make an easier access to the wharf, a 27 foot stone wall, with joints cemented, was built from approach to corner of private wharf, forming downstream side of Enfant Jesus street. Minor improvements were also made. Total cost $2,175.23. Work was done by day labour.

Dredging.

From September 8th to 17th, departmental dredge *Challenge* worked at Pointe aux Trembles, immediately downstream of public wharf. Some 2,350 cubic yards (scow measurement), cast over, of clay removed in deepening to 10 feet.

POINTE ST. PIERRE.

Pointe St. Pierre is an important fishing cove at the outside north-east point of a large bay, some 5 miles wide at its entrance, extending from Percé to Pointe St. Pierre.

A breakwater was built in 40 feet of water by contract work in 1903, so as to protect the cove from easterly winds.

In the fall of 1909, the wharf was badly damaged by a storm and had to be repaired. This fall, the top of the wharf had to be rebuilt and raised from 20 inches to 2½ feet for a length of 200 feet. Ten long iron rods with turn buckles had to be placed so as to stop the opening up of the structure; 18 posts had to be placed inside and 26 hardwood pieces outside, and 23 cubic yards of concrete were placed in worse spots. A new slip of 16 by 10 feet had to be built inside and the approach levelled up and repaired.

Expenditure $2,983.57.

POLTIMORE.

Poltimore, a village in Labelle county, is on the west shore of Lièvre river, 18 miles above Buckingham, opposite La Salette.

During the past year, the float landing was maintained at a cost of $25.

PORT ST. FRANÇOIS.

Port St. François, a port of call by the Richelieu and Ontario Navigation Company (Montreal and Three Rivers line), in Nicolet county, 4 miles from Three Rivers.

The Port St. François wharf consists of :—

1. A close-faced crib headblock, 136 feet long at bottom and 126 feet at top on account of ice-breaker, 12 feet wide from upstream end for a length of 40 feet, and 37 feet wide for the remaining 70 feet, sunk 17 feet high in 8 feet of water at low level.
2. A stone and earth approach, 250 feet long by 36 feet.
3. A 34-foot right-of-way, 2,828 feet long, leading to public road.
4. A movable freight shed, 30 by 20 feet, near downstream intersection of headblock and approach.

During June and July, 1910, the sum of $597.90 was expended in renewing the three upper tiers of outside face of headblock which had been broken by ice, and in minor improvements. Work was done by day labour.

PORT DANIEL.

Port Daniel, Bonaventure county, is situated on the north shore of the Baie des Chaleurs, 45 miles from Percé. It is an important settlement of 1,200 inhabitants, mostly engaged in the fishing industry.

During the last fiscal year, piling at Port Daniel wharf has been continued; piles have been driven until refusal along the east side upon a distance of 188 feet. The wharf which had a tendency to open, has been anchored with iron bars in many places. Some trifling repairs were also done to the shed.

The work was commenced on April 27 and suspended on August 18.

When the work was suspended, 143 pieces of timber of 23 feet long, were left over and have been piled near by.

Amount expended, $1,198.76.

POUPORE.

The departmental dredge, *No. 2,* worked at Poupore, on the Lièvre river (August 27 to November 14), making two cuts, 711 and 394 lineal feet, respectively, and 26 feet wide, to a grade depth of 10 feet to widen the channel at the lower entrance of the locks. A long shoal which interfered with the towing of scows, at high water, was removed at the same time.

Nine thousand eight hundred and twenty-six cubic yards of clay, scow measure, was removed and spoiled 1¼ miles down stream, below the old landslide which occurred in 1900.

QUEBEC.

The work of construction of a deep water wharf, called No. 1, on the harbour front, was started in 1903, and was built under five different contracts, the outer face of the wharf is 1,460 feet long in a northerly continuation of the old breakwater, and 300 feet wide; it is built with outer walls of timber cribwork with a concrete superstructure, and filled between with dredged material.

The last contract consists in the construction of the inner wall, 990 feet long, and 400 feet of bulkhead parallel with the Louise embankment.

During the last fiscal year, 1910-11, the three last cribs, forming a total length of 554 feet, were sunk in place; the seats of these cribs were dredged out, amounting to 90,000 cubic yards of material; the stone foundation, equal to 5,750 cubic yards, was built; the concrete superstructure was built over a length of 384 feet, amounting to 2,410 cubic yards, and about 35,000 cubic yards of earth filling were placed in the work.

It is expected that the work at present under contract will be completed by the end of August, 1911.

The amount expended during the fiscal year was $245,056.80, and $34,223.03 for dredging.

REPENTIGNY.

Repentigny, a post village in l'Assomption county, on the St. Lawrence, with port on that river at the quay of Repentigny. Its station (1½ mile distant) is St. Paul l'Ermite, on the Canadian Northern Quebec railway. It has one Roman Catholic church, one store, one hotel and two mills. Population 594.

The public wharf at Repentigny, built by contract in 1905-08, consists of:—

1. A close-faced crib headblock 74 feet long by 40 feet wide, ice-breaker inclined 1½ in 1, and standing 20 feet high, in 8 feet of water at lowest level.

2. A close-faced approach 230 feet long and 16 feet wide with both sides vertical, upstream one being sheathed (as ice-breaker) with ¼-inch steel plates.

3. A stone approach 748 feet long and 18 feet wide at top with sides riprapped and sloped 1 in 1.

During June, 1910, the sum of $103.90 was expended placing a guard railing on both sides of the intersection of crib approach with headblock, and in minor repairs.

From June 27 to July 5, and from August 16 to 20, 1910, departmental dredge *No. 3* worked at Pointe Repentigny, opposite public road leading to the village of Repentigny. Some 1,997 cubic yards (scow measurement) of clay were removed. This dredging facilitates the landing of the ferry-boat plying between Bout de l'Ile, Pointe Repentigny, Charlemagne and Repentigny village.

The total expenditure for the year, including dredging, was $912.60.

RIGAUD.

Rigaud, a post village and seignory in Vaudreuil county on the Rivière à la Graisse, 2 miles south of quay de Rigaud, a port of call on the Ottawa river. It is a station on the Canadian Pacific railway (Montreal and Ottawa, short line), 16 miles northwest of Vaudreuil, and 41 miles west of Montreal. It is 8 miles east of St. Eugène, Ontario, on the same line, and 75 miles east of Ottawa. It is the seat of Bourget college and Ste. Anne's convent. The Sanctuary of Notre Dame de Lourdes in Rigaud mountain is, in the summer season, a place of frequent pilgrimage. The village has one Roman Catholic church, six stores, one foundry, one branch bank, saw, grist, card-

ing and fulling mills, besides express and telegraph offices. Population of village, about 800, of parish, 1,050.

The Rigaud wharf below the Canadian Pacific Railway bridge, built in the autumn of 1909, consists of:—

1. A pile headblock 75 by 26 feet, standing 20 feet high in 10 feet of water at low level.

2. A stone and earth approach, 94 feet long, from 20 to 16 feet wide, and sloped 8 in 11, leading to the King's highway.

During April, 1910, a sum of $104.55 was expended in raising the two outside corners of headblock to be used as boat guards at high water. During May, a freight shed 18 by 30 feet, was built by contract with Mr. George Seguin for $500. The land back of the headblock was filled in with stone, the roadway improved and a cattle yard fenced, by day labour, at a further cost of $441.61. Total expenditure $1,024.88, exclusive of purchase of land ($700) and notarial fees.

Dredging.

From June 8 to September 3, departmental dredge *Challenge* worked in river Rigaud between the bridge and the mouth of the river, some 9,400 cubic yards (scow measurement) of clay and gravel were removed. Distance advanced 1,950 feet.

RIMOUSKI.

The town of Rimouski, in the county of the same name, is situated on the south shore of the St. Lawrence, 180 miles below Quebec; its population is nearly 4,000.

It is an important station of the Intercolonial railway; it is also the place where the royal mails are transferred from steamers to the railway and *vice versa.*

Spring tides rise 15 feet; neaps, 9 feet.

The Rimouski wharf, which is 2,240 feet in length, was formerly 20 feet wide only. During the last three years previous to 1910, it was widened to 42 feet throughout its full length.

During the fiscal year ended March 31, 1911, in order to allow further dredging to be done near the wharf, the pitch pine piling, commenced last year, along the western face of the wharf, was continued on a length of 278 feet, going shoreward; piles 9 inches in thickness were sunk to a depth of 10 feet into the bottom and thoroughly secured to the face timbers; 75,000 feet, B.M., of southern pine were used for this work.

On the request of navigators, the slip on the west side of the wharf was filled with cribwork, and instead a low level flooring was constructed: length, 153 feet; width, 14 feet.

The pavement of the carriage track was doubled on a surface of 11,960 square feet, with spruce deals 3 inches thick.

The hardwood sheathing of the outer face was repaired and several mooring posts were replaced.

Minor repairs have also been made, and the expenditure amounted to $8,391.99, including the salary of the general foreman of the district, for eight months.

The work was commenced on June 1 and postponed on September 27.

Dredging.

During the fiscal year ended March 31, 1911, the dredging at Rimouski was performed by the departmental dredge, *Progress,* which was worked from the end of June to the end of September.

The object of the dredging is to open a 15-foot channel from the wharf to deep water, so as to provide a uniform depth of 15 feet of water at low spring tides, and

allow the mail tender, *Lady Evelyn*, to perform service in the transfer of the royal mails at any stage of the tides.

Although the work is not completed yet, nevertheless, no delays were experienced during the last summer by the *Lady Evelyn* in the delivery of the mails.

About 75,000 cubic yards were removed, and the material excavated was moderately hard clay mixed with sand.

RIVIÈRE À LA PIPE.

Rivière à La Pipe, is a small village situated on the north shore of Lake St. John, at the mouth of the river of the same name, 7 miles north of La Grande Décharge.

The wharf is situated on lot No. 118, township of Taillon, about one mile westward of Rivière à La Pipe. It is built in a southerly direction, about 75 feet from the shore, for a length of 600 feet and a width of 25 feet, and extends to 8 feet in depth at the mean summer level of Lake St. John.

During the past fiscal year, a building was erected to serve as a waiting-room and a freight shed, and is of the following dimensions, 16 by 32 and 8 feet in height. General repairs were done, and the closing up of space between blocks of wharf.

Work started on July 20, 1910, and ended September 16, 1910.

Expenditure, $995.18.

RIVIÈRE AUX OUTARDES.

Rivière aux Outardes, in the parish of St. Fulgence, Chicoutimi county, is situated at about 10 miles below Chicoutimi.

Rivière aux Outardes is frequented by schooners and bateaux, for the transportation of lumber and firewood.

During the past fiscal year, the work done was the blasting and removal of boulders in the channel of the river to improve navigation.

Work started August 14, 1910, and ended September 9.

Amount expended, $409.87.

RIVIÈRE AUX VASES.

Rivière aux Vases, Chicoutimi county, on the north side of the Saguenay river, situated in the parish of Ste. Anne de Chicoutimi, at about 6 miles above Ste. Anne's village.

In 1908-09, a pier 80 feet in length by 20 in width was constructed.

During the past fiscal year, three piers were constructed, one 20 by 25 by 18; another 20 by 30 by 23, and the third one is 30 by 45 by 16; this last pier was sunk in 11 feet of water, at low water spring tides; there is a space of 25 feet between each pier, which are fully ballasted. The flooring for a length of 100 by 20 was done with 4-inch plank.

Work started on June 11, suspended in August, and work was started again January 2 and completed February 28.

Amount of expenditure, $5,074.85.

RIVIÈRE BAUDE.

Rivière Baude is situated on the north shore of the St. Lawrence river, Saguenay county, in the parish of Tadousac, about 3 miles from the village.

The survey of the river was made last summer. A sum of $298.30 was expended for the removal of boulders in the channel to improve navigation.

Work started September 10 and ended 30th of the same month.

LES BERGERONNES (RIVERS).

Les Bergeronnes, in Saguenay county, is on the north shore of the St. Lawrence river, 18 miles below Tadousac.

There are at Les Bergeronnes two rivers called Les Petites and Les Grandes Bergeronnes both rivers are navigable for schooners for a distance of 3 miles at high water.

For details for removal of boulders in both rivers, *see* Public Works Report, 1909-10, page 91, part IV.

During the past fiscal year, an extension of 125 by 20 by 15 feet was constructed on the west side of the wharf, partly sheathed with 4-inch deals, and the whole is fully ballasted.

Work started June 20 and completed September 12, 1910.

The improvement of the channels of both rivers was continued by the blasting and removal of boulders.

Total of expenditure for removal of boulders and the construction of the extension is $2,659.32.

RIVIÈRE BLANCHE.

The village of Rivière Blanche or St. Ulric de Matane, county of Rimouski, is on the south shore of the St. Lawrence, 21 miles east of Métis and 9 miles west of Matane.

Spring tides rise 14 feet; neaps, 8 feet.

The sum of $384.50 was expended in removing sand from the inside of the 'L' of the wharf, where its accumulation interfered greatly with the approach of schooners to the wharf.

Boulders obstructing the entrance of the harbour were also blasted and removed.

The work was performed during the month of July.

RIVIÈRE BLONDELLE.

This is a small river, tributary of the River St. Lawrence, situated in the parish of St. Joachim, in the county of Montmorency.

This river is navigable for small vessels in the lumber trade.

During the present fiscal year, minor improvements were made to the new channel in order to prevent the river from taking its old course.

The work was commenced on the 25th and completed on the 29th October, 1910.

The expenditure for the present fiscal year, 1910-11, amounts to $23.50.

RIVIÈRE DU LOUP.

Rivière du Loup, or the town of Fraserville, is the chef-lieu of the county of Temiscouata. It is situated on the south shore of the St. Lawrence, 114 miles below Quebec. It is a thriving little town of over 7,000 inhabitants, and contains several manufactories, including two pulp mills.

The Rivière du Loup Point, where the wharf is located is distant 2½ miles from the village. It is one of the best known and most frequented summer resorts of the St. Lawrence.

There is a branch of the Intercolonial railway extending from the station to the outer end of the wharf, a distance of about 6 miles.

Spring tides rise 19 feet; neaps, 12 feet.

The renewing of the superstructure of the wharf, commenced three years ago, was continued during the last fiscal year ended March 31.

A surface of 20,275 square feet by a mean height of 4 feet was renewed, all timbers being replaced.

Owing to heavy traffic, the flooring was doubled on a surface of 5,000 feet; three ladders and four mooring posts were replaced, and a new railing 25 feet long was placed where needed.

Many other small works have also been performed.

The work was commenced on 20th June and completed by the 1st of October.

The expenditure was, $3,983.53.

Dredging.

The dredging was carried on under contract by the W. J. Poupore Co., Ltd., of Montreal, using the spoon dredge *Pontiac* which had worked from the 18th of July to the 3rd of November.

The work consisted in removing the silt and clay accumulated around the head of the wharf, and to provide a depth of water of 14 feet at low tides at the outer end of the wharf, and 10 feet along the faces at a small distance from the outer face; some wreckage was met with which caused some delay in the work.

Dredging was also performed inside the Rivière du Loup to remove shoals and to allow schooners to approach the chair factory at high tides; much time was lost there on account of the dredge being able to work only at high tide.

The number of cubic yards removed was 47,624, consisting of moderately soft clay mixed with sand near wharf, and clay mixed with boulders inside the river.

The amount expended was $14,416.20.

The dredging performed has much improved conditions near the wharf where vessels can now find shelter and stay afloat at low tides.

RIVIÈRE DU LOUP (EN HAUT).

This river flows through the county of Maskinonge and empties into the St. Lawrence, on the northern shore of Lake St. Peter, at Louiseville, about 21 miles above Three Rivers.

The river is navigable at its outlet for a distance of about 3¾ miles, to the highway bridge at Louiseville, for boats drawing less than four feet of water, during the low water season.

Dredging operations were performed at Louiseville landing pier and the approach of the wharf at Tourville's mill, by dredges under contract with the W. J. Poupore Co., Ltd., from May 4th to August 8th, 1910.

44,767 cubic yards were removed by dredge *Duke of York* from May 4 to July 15, 1910, for a four-foot channel from the government wharf at Louiseville to the saw-mill, and for a seven-foot channel below the saw mill from section 13,000 feet to 12,000 feet and from section 8,500 feet to section 4,200 feet above the outlet.

42,871 cubic yards were removed by dredge *Prince Willie* from May 4 to June 15, and from July 11 to August 6, 1910, removing the shoals from the saw mill to the outlet, and at the entrance of the river for a seven-foot channel.

The work done amounted to 87,638 cubic yards of clay and sand removed, and the expenditure under that head was $19,220.26.

RIVIÈRE DU SUD.

The Rivière du Sud which flows through the town of Montmagny, empties into the St. Lawrence by a perpendicular fall of 20 feet.

Near the town, the river is crossed by the Intercolonial railway bridge, and along the eastern bank above the bridge, a retaining wall was constructed in 1895, the object of constructing the wall was to protect the bank of the river and to prevent the public road from being desintegrated by the current and ice which, in freshet times, are deflected in that direction by the ice-breaker piers of the Intercolonial bridge.

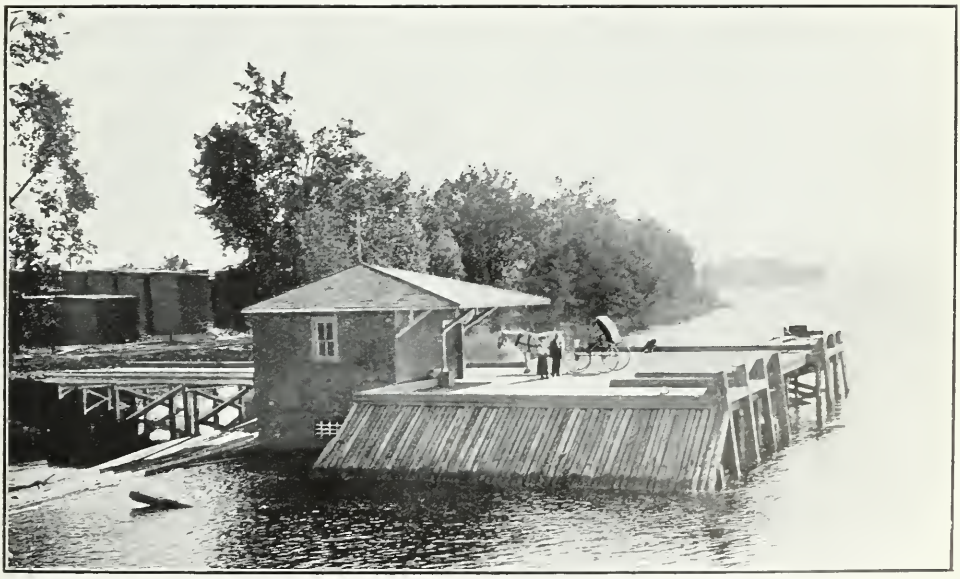
During the last fiscal year, this wall was extended a distance of 125 feet.

Murray Bay, P.Q. Wharf from stream.

Murray Bay, P.Q., from the shore.

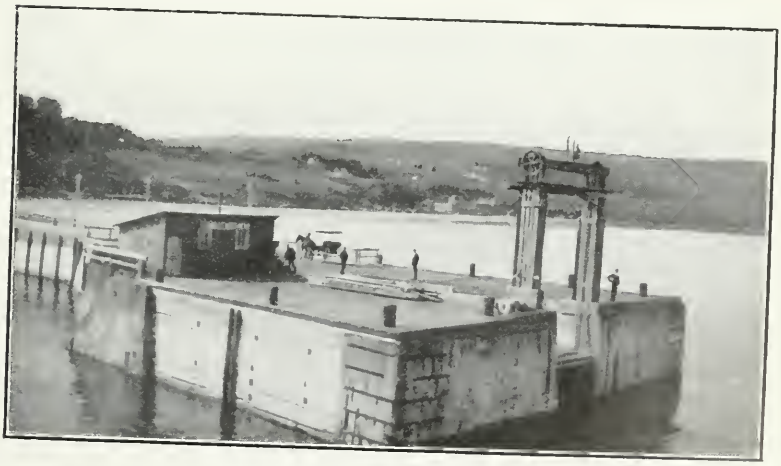
St. Simeon, P.Q., Close faced cribwork wharf.

St. Jean (Island of Orleans), P.Q., close faced pilework.



East Templeton, P.Q., pilework wharf.

St. Irénée, P.Q., in the early spring.



St. Irénée, P.Q. Landing pier, ready for new warehouse.

The average height of the wall is 8 feet, the width being 7 feet at the bottom and 5 feet at the top.

It is built of large rubbles, hammered and scabbled on the faces and laid so as to form proper bonds with suitable headers and stretchers. The copings are laid in cement and all exterior joints are also cemented.

The backing is comprised of broken stones and earth.

The parts of the wall, built in previous years, were raised where they had settled, on a length of 350 feet by a mean height of 9 inches. Two culverts were repaired and broken stone and earth placed in the backing.

The work was commenced on July 3, and completed on September 21.

The expenditure amounted to $1,500.48.

RIVER GODEFROYE.

Godefroye, a small river in Nicolet county, rises in the seigniory of Roquetaillade, and running north-east, falls into the St. Lawrence opposite Three Rivers.

The River Godefroye wharf, built by contract in 1906, consists of:—

1. A pile headblock 32 feet 3 inches wide formed of two portions, one 60½ outside face, the other 36½ feet, the two making an inner angle of 125 degrees, the whole standing 11 feet 9 inches above zero gauge.

2. A stone approach 611 feet long, 16 feet wide.

3. A storehouse 22 by 16 feet on headblock.

During July and August, 1910, the sum of $1,162.30 was expended in the building of a 6 foot above zero gauge pile and crib extension, 33 by 10 feet, for use at low water level, stone filling behind up to stone approach from 20 to 42 feet distant. Work was done by day labour.

RIVER NICOLET.

River Nicolet rises in Lake Nicolet, passes through Richmond and Wolfe, Drummond and Arthabaska and Nicolet counties, and falls into lake St. Peter, some 10 miles above Three Rivers, length 60 miles.

From July 12 to November 14, 1910, dredge *Ottawa,* the property of Mr. H. M. Connolly and operated for the account of L. Cohen and Sons, worked under contract from the mouth of the river up to the government wharf a distance of about 1 mile. The channel was made 50 feet wide and to a depth of 10 feet below zero gauge. Average depth of cut made from 3¾ to 6 feet. Quantity 74,058 cubic yards, scow measurement, of sand and clay. Contract price 22 cents a cubic yard.

RIVIÈRE OUELLE.

The pier is situated at Point aux Orignaux, 5 miles distant from the village of Rivière Ouelle in the county of Kamouraska on the south shore of the St. Lawrence, opposite Murray Bay. A branch of the Intercolonial railway, built from Rivière Ouelle station to the outer end of the wharf, connects with a steamer which crosses the St. Lawrence several times a day during the summer season, calling at Murray Bay and other places on the north shore.

In winter, the service is also daily.

During the fiscal year ended March 31, 1911, the following works were performed on the wharf:—

To strengthen the face-timber, much weakened, and to allow the structure to carry safely the weight of trains, the pitch-pine piling, begun on the west side of the wharf, was continued for a length of 160 feet. The piles were 35 to 40 feet long, 9 inches thick, driven 5 feet into the bottom and well secured to the face-timbers. Iron tie rods binding both faces of the wharf were placed every 25 feet.

A surface of 2,700 square feet of flooring was renewed.

The east side stairway was entirely renewed and the west side one was repaired, the hardwood sheathing of the outer face has been repaired and new iron straps were placed on the corners. 200 feet long of railing and 236 of capping pieces were renewed and the same painted, on the whole length of the wharf.

The work was commenced on June 20 and completed on September 20.

The expenditure was $4,488.23.

RIVER RICHELIEU IMPROVEMENTS.

St. Johns, a delightfully situated town of Quebec, 'chef-lieu' of the district of Iberville, on the Richelieu river, 27 miles from Montreal. It contains, besides the district and county buildings, churches for the Episcopalians, Methodists and Roman Catholics, the head office of St. Johns bank, branches of La Banque Nationale, the Eastern Townships and the Merchants' Bank of Canada, twelve hotels and about one hundred stores.

From April 23 to November 25, L. Cohen & Sons' dredges, *Maberley* and *Lanark*, worked in River Richelieu, opposite St. Johns. The 750 feet wide channel, in connection with river Richelieu improvements, was completed from Jones' bridge down to from 80 to 130 feet upstream of Canadian Pacific Railway bridge, a distance of 800 feet.

Dredge *Maberley* removed 64,037 cubic yards, scow measurement, and dredge *Lanark*, 50,193 cubic yards, scow measurement, of clay, sand, boulders and hard pan. Depths of cut made from 2½ to 12 feet.

Both these dredges were leased by the government at a price of $9.50 an hour of actual working time, the Crown also paying the salaries of the crew and expenses for coal, oil, &c.

The following expenditures were certified to by this office:—

Dredge.	Rental.	Salaries, coal, oil.	Expenses, total.
Maberley..	$14,545 30	$9,309 70	$23,855 00
Lanark..	13,926 23	8,546 32	22,472 55

Average cost per yard: *Maberley*, 37¼ cents; *Lanark*, 44¾ cents.

Average cost for both, 40½ cents per cubic yard.

Departmental dredge *Richelieu* also worked in conjunction with leased dredges, starting April 23 and finishing November 25. Quantity dredged, 43,482 cubic yards, making work of the three dredges total 157,712 cubic yards of clay, sand, boulders and hard-pan.

RIVER ST. LOUIS.

St. Louis de Gonzegue, a post settlement in Beauharnois county, 1 mile from St. Louis station, on the Ottawa and Swanton branch of the Grand Trunk railway. It contains two churches, four stores, and one butter and cheese factory. Population, 250; of parish, 1,200.

From June 6 to November 19, 1910, departmental dredge, *No. 1*, continued the dredging and blasting of River St. Louis, started in 1904, and continued every year since. Some 13,000 cubic yards of clay were dredged, and 6,992 cubic yards of rock blasted and removed. Total, 19,992 cubic yards. Distance advanced, 1,700 feet.

RIVIÈRE SAULT AU MOUTON.

Rivière Sault au Mouton, is situated on the north shore of River St. Lawrence, Saguenay county, 2 miles west of the village of Mille-Vaches.

The removal of boulders was continued.

Work started June 22 and was completed by August 6, 1910.

Expenditure, $1,002.10.

RIVER TROIS PISTOLES.

Trois Pistoles river empties into the St. Lawrence about 3 miles west of the village of Trois Pistoles, in the county of Temiscouata. The station of the Intercolonial railway is called McKenzie. A railway branch about 6 miles long, extends from this station to a pulp mill on the river. A large saw-mill is also operated, and important shipments of lumber are made to European markets.

To improve the channel at the mouth of the river, the sum of $1,523.35 was expended in removing obstructions from the entrance to the harbour; about 435 boulders, some 6 feet high, were blasted, and the broken pieces, aggregating nearly 120 toises of stone, were taken away.

The channel is now wider and straighter, and the entrance to the harbour is greatly improved.

The work was done during the months of July, August and September.

RIVIÈRE VERTE.

East side.

Rivière Verte, which flows through the parish of Isle Verte, in the county of Temiscouata empties into the St. Lawrence, about ¾ of a mile west of the Isle Verte church.

During spring freshets, the river is liable to cause considerable damage by flooding the mills and scouring and desintegrating the land of the riparian properties.

In order to prevent further damage and to facilitate the flow of water in spring, the channel of the river was deepened on a length of 650 feet by a width of 40 feet, 9,500 cubic yards of sand and gravel were removed and placed as a backing on the inner side of the dyke built some years ago, this dyke was extended northward for a distance of 100 feet, is built of large boulders, 6 feet wide at the base and 5 feet in height.

The work begun on June 27, was completed September 3.

Expenditure $1,509.93.

West side.

The landing pier commenced last year along the western bank of River Verte, for the accommodation of people engaged in the sea moss industry, was extended a length of 166 feet during the fiscal year ended March 31, 1911, the total length of the pier is now 420 feet, the width is 15 feet and the mean height 8 feet with an earth backing.

The pier consists of an open-faced light cribwork, filled with stone.

To guard against undermining and scouring, the construction was seated upon a brush and flat stone foundation.

The work was performed between July 7, and August 9.

Amount expended $1,489.65.

ST. ALEXIS WHARF.

St. Alexis, Baie des Ha Ha, in Chicoutimi county, is situated on the south shore of the Baie on the River Saguenay, about 63 miles from its mouth.

For details of construction of wharf, see Report, Department of Public Works, 1909, page 122, part IV.

From May 30 to June 14, digging was done on the west side of the wharf with a view of making a bed for the proposed extension to the wharf, this dredging was done by the 'Steam Derrick Scow' on which there is an 'Orange peel' bucket.

Cost of dredging $800.

On July 14 of the past fiscal year, a contract was awarded for the construction of an extension, the amount of the contract is $13,395.96.

The work done was the construction of a headblock 50 by 22 feet and an 'L' of 38 by 30 which were sunk in 32 and 35 feet of water.

Amount expended on contract $9,066.14.

Work was started on July 19, and suspended for the winter on November 5.

From August 17 to September 7, the sum of $55.31, was expended on minor repairs.

ST. ALPHONSE DE BAGOTVILLE.

St. Alphonse de Bagotville is situated at the head of Ha Ha Baie, on the southern side of the River Saguenay, 66 miles from its mouth.

A landing pier was built by the parochial athorities prior to Confederation, at a cost of about $3,200.

For details of repairs from 1905-6 to 1909-10, see Report, Department of Public Works, 1909-10, page 105-106, part IV; for details of the construction of an extension 58 feet wide on the western side, and 45 feet on the eastern side, for a length of 160 feet, measuring on top from outside to outside of the face-timber, see same report as stated above.

The work done during the past fiscal year were repairs from the headblock to shore, a distance of 480 feet; four or five pieces of the face-timbers were renewed; new stringers, new cross-ties and longitudinals were put on; the planking was renewed with 4-inch deals and on the west side a new pier towards shore was built, which is not yet completed.

Work started on July 2, suspended on the 13th of the same month, started again on the 29th, and ended on November 8, 1910.

Amount expended $7,980.07.

ST. ANDREWS.

St. Andrews, Argenteuil county, is located on the North river, 3¼ miles from the Ottawa river.

At its last session, parliament granted $5,000 towards the construction of a cribwork wharf. A contract was entered into with the Bridge and Wharf Builder Company, of Montreal, for the sum of $3,245. Work was started March 16, and has been progressing favourably since.

Status of work on March 31, the two landing head piers sunk and nearly completed to proper elevation.

Expenditure to March 31, $2,130.50.

STE. ANGELE DE LAVAL.

Ste. Angele de Laval, a post village and parish in Nicolet county on the St. Lawrence river, opposite Three Rivers and near to Doucets Landing on the Three Rivers branch of the Grand Trunk railway to Victoriaville and Arthabaska. It has a Roman Catholic church and convent, five stores, two temperance hotels, two restaurants, several mills and manufactories, with express and telegraph offices. Population of parish 982.

The Ste. Angele de Laval wharf, built by contract in 1907-8, immediately downstream of the Doucet Landing, Grand Trunk railway wharf consists of:

1. A pile headblock 85½ by 64 feet 5 inches standing 24 feet 10 inches high in 11¼ feet of water at low level;
2. A trestle approach 72½ by 20 feet;
3. A stone approach 26½ by 20 feet with sides rip-rapped and sloped 1 in 1.
4. A 30 foot right of way, 460 feet long, leading to public road.

During August, September and October, 1910, a sum of $2,018.43 was expended in renewing the trestle approach, consolidating the headblock by the addition of piles, and in improving with stone and gravel roadway to wharf.

Work was done by day labour.

STE. ANNE DE BELLEVUE.

Ste. Anne de Bellevue, a thriving post village and parish in Jacques Cartier county at the confluence of the rivers Ottawa and St. Lawrence, and on the Grand Trunk railway, 21 miles west of Montreal. It contains two churches (Episcopal and Roman Catholic), one convent, one college for the education of Roman Catholic boys and girls, one bank, two telegraph offices, five hotels, seven stores, two carriage factories, the Macdonald College of Agriculture and is a favourite resort during the summer months. Thomas Moore, the Irish poet, composed the 'Canadian boat song' in this village, in the house now occupied by the Bank of Montreal. Population, 1,800.

The public wharf at Ste. Anne de Bellevue, built in 1882, is composed of:

1. A crib headblock 120 by 25 feet standing 13 feet high in 5·7 feet of water at low level.

2. A crib and stone approach 75 feet long and from 18 to 12 feet wide leading to St. Peter street.

During the whole of July, 1910, the whole flooring of headblock was covered with 2-inch spruce planks, some pieces of front fenders renewed, one corner of upstream slip repaired with 10 by 12 inch pine, the three upper tiers of crib of approach renewed and a cattle yard fenced on headblock. Total cost, $200.71. Work was done by day labour.

STE. ANNE DES MONTS.

The Ste. Anne river flows into the St. Lawrence at the west end of the village of Ste. Anne des Monts, one of the oldest and most important establishments of the Gaspé Peninsula, some 100 miles below the nearest railway station, Little Métis. Several saw-mills are in operation.

The Ste. Anne river basin, just inside of the outlet, was always used as a harbour for small schooners which could go in at high tide only, as there was not more than six inches of water at low water stage over the bar and about one foot in the iuside basin. Several petitions were sent in, asking to improve the harbour and dredge the inside basin down to 14 feet at low water stage. The proposed work proved too expensive at the time and it was proposed, as the next best thing, a training pier that would retain in one permanent place, the ever shifting channel.

The Ste. Anne river, being fed on both sides by mountain torrents, flowing from the highest peaks of the Shickchock mountains, becomes itself a dangerous torrent that has been known to rise two feet in one hour and fourteen feet in one storm, carrying away small islands and standing trees. The scouring at the time of freshet is very dangerous for any structure along its course, the piers of the LeBouthillier estate, and even their buildings, were carried away at times.

The training pier, commenced in 1906, was built for a length of 940 feet from the left or west bank of the River Ste. Anne, across the channel existing at the time, to the northeast point of a small rocky ledge. For the full length of the work, except for the last outside 50 feet, where rock was met 7 feet below low water level, the whole of the work had to be built on sand with stones and clay underneath, and a foundation of fascine mattresses had to be built the whole way to receive the superstructure.

The west channel was closed in the fall of 1909, but the ballasting all along the work could not be completed, being 4 feet lower than called for.

In the spring of 1910, so as to help the schooners, a channel along the east face of the training pier was dredged. A few days afterwards, the spring freshet deepened

the channel, that was 150 feet wide, down to 16 feet below the original surface, giving 14 feet of water at low tide along the east face of the training pier. The structure was not disturbed, but some of the ballast, on a length of some 300 feet, settled down along the said eastern face.

As in a very heavy freshet, that had carried to sea over three hundred of our logs, the eastern point, on which was built the establishment of the Dominion Lumber Company, was cutting away, a protection of fascine mattresses was laid along the bank for a length of 150 feet, and a wharf 225 by 50 feet was built below on a foundation of fascines. The whole proved satisfactory.

So as to protect the large schooners that prefer to lay along the east side of the training pier, where they are always afloat, having 14 feet at low water, a breakwater had to be commenced at 150 feet east of the training pier. Two hundred feet of the said breakwater is now under construction; one-half of the said two hundred feet has been built.

Expenditure, $4,514.45.

STE. ANNE DU SAGUENAY.

Ste. Anne du Saguenay, Chicoutimi county, is situated on the north shore of the Saguenay river, 72 miles above Tadousac and opposite the town of Chicoutimi.

Spring tides, 17 feet; and neaps, 9 feet.

For details of construction and repairs up to 1907-8, *see* Public Works Report, 1908, page 140, also Public Works Report, 1906-7, page 120.

From 1908-09 to 1909-10, *see* Report Public Works Department, 1909-10, pages 106 and 107, part IV.

During the last fiscal year, the work done consists in the closing up of spaces between blocks of wharf; a part of the flooring was renewed, and general repairs were made.

Amount expended, $1,999.34.

Work started 11th June, 1910, and ended September 29th.

ST. BLAISE.

St. Blaise, a post village in St. Johns county, on the Richelieu river and on the Grand Trunk railway, 4 miles from St. Johns. It contains 2 churches (Roman Catholic and Baptist), 3 stores, besides telephone and telegraph offices. Population, 950.

The St. Blais landing pier, built in 1905-7, consists of:—

1. A headblock formed of a row, 175 feet long, of closed piles with an upstream backing of earth and stone, the latter riprapped and sloped 1 in 1; piles standing in 6 feet of water at low level and 5½ feet above, with cap on top and double fenders in front and retained, every 5 feet, with 16 foot 1½-inch anchor bars, to a second series of lower piles embedded 12½ feet backward in stone.

2. A stone approach 487 by 16 feet with sides sloped 1 in 1 and including two 20 foot culverts.

3. A 25 foot right of way 2,000 feet long leading to public road.

During September and October, 1910, a sum of $1,198.81 was expended in raising headblock and stone approach one foot with stone and gravel, in improving roadway, fencing, draining, trenches, &c.

Work was done by day labour.

ST. CHARLES BORROMÉE.

St. Charles Borromée is a village situated on the north shore of La Grande Décharge of Lake St. John, in the county of Chicoutimi, 21 miles above Chicoutimi.

The work done during the past year was the completion of the landing piers constructed on both sides of La Décharge, and the two small freight sheds erected the year previous were also completed, these are 10 by 12 feet.

Amount expended $307.77.

Work started October 31, and was completed on November 9.

ST. CHARLES DE CAPLAN.

St. Charles de Caplan, situated on the north shore of the Baie-des-Chaleurs, is one of the most important business centres of the county of Bonaventure.

On May 31, 1910, a contract was entered into with Messrs. John Burns and Thos. P. Charleson, for the construction and completion of an extension, 400 feet long by 30 feet wide, to the present wharf at St. Charles de Caplan, at the price of $14,933.

It is a close-faced construction, standing in 10 feet of water, E.L.W.S.T., ballasted with stone, both sides sheathed with 4-inch sheathing, the corners upon a distance of 20 feet are protected with 6-inch plank re-inforced by six boiler plates, 4 by 8 feet. The whole of the extension is covered with 4-inch deals.

The work was immediately started after the signing of the contract and was completed in December.

ST. DENIS.

St. Denis, a flourishing post village and parish of St. Hyacinthe county, on the River Richelieu, 18 miles from St. Hilaire station, 6 miles from Contrecœur, on the south shore of Montreal and Sorel railroad. The village contains one Roman Catholic church, one convent, one hospital, ten primary schools, one commercial college, one bank, one savings bank, seven stores, two hotels, saw, flour and planing mills, five butter and cheese factories, three carriage factories, three furniture factories, cutlery, sash and door factories, one tombstone manufactory and one bank (Provinciale), telegraph and telephone offices. Population of parish (composed of 200 families), 2,150.

The pile wharf, built in the autumn of 1909, consists in:—

1. A headblock 65 feet long by 32 feet 5 inches wide, including a 12-foot ice-breaker standing 19 feet 3 inches high in 9 feet of water at lowest level.

2. A stone approach from 56 to 82 feet long and 35 feet wide with sides riprapped 1 in 1.

In the middle of August, 1910, work was begun on a pile extension of 24 by 32 feet at downstream end of headblock, making outside face 75 feet long, besides ice-breaker.

Completed March 31, including the erection of a freight shed 20 by 24 feet at downstream intersection of headblock and approach. Total expenditure $2,571.06.

Work was done by day labour.

Dredging.

From August 31 to October 15, 1910, departmental dredge *St. Louis* worked in the downstream branch of V-shaped channel leading to public wharf. Some 5,760 cubic yards scow measurement of clay were removed.

From October 6 to 18, departmental dredge *Nipissing* also worked in both branches of channel, removing 3,160 cubic yards of same material.

Total quantity dredged 8,920 cubic yards.

ST. EDOUARD DES MECHINS.

The village of St. Edouard des Mechins in the county of Rimouski, is situated on the south shore of the St. Lawrence, 35 miles below Matane. It has a population of 800, consisting chiefly of fishermen and lumbermen. Some farming is also done. For the accommodation of people in this vicinity, and more so, to provide a landing

and shelter to vessels plying along that long stretch of coast from Matane to Cap Chat, from which they were totally deprived, the government built a wharf at Mechins. During the last fiscal year, to stop the scouring and disintegrating of the bottom by the waves and current, which was carried to such an extent as to cause the structure to lower nearly three feet at the outer end, stone was placed underneath the wharf and along the faces.

This work was performed with the aid of a diver and the stones used were large and heavy.

The superstructure of the wharf was also raised and levelled from the outer end, on a length of 136 feet by a mean height of 2½ feet, and stone ballast was added where necessary. A few pieces of the hardwood sheathing was replaced.

These repairs begun on the 14th of June, were postponed on the 1st of October.

ST. ELOI. (POINTE À LA LOUPE.)

St. Eloi is a post village of the county of Temiscouata, on the south shore of the St. Lawrence, 21 miles east of Rivière du Loup. The small landing pier, built last year, underwent some damage from ice during the winter, for the repairs of which the sum of $100 was expended.

This work was done during the month of July.

STE. EMÉLIE (LECLERCVILLE).

In March, April, May and June, a sum of $324.43 was expended in connection with isolated block at Ste. Emélie, county Lotbinière, in removing the two small sheds from block (over the ice) before spring freshets; the purchase of materials to replace fourteen of the cross-horses (chévalets) of the trestle-roadway and other timbers carried away in a storm, in November, 1909; the renewal of two long fenders and 55 lineal feet of 3-inch 12-foot planking, together with other sundry repairs, and subsequently placing the 636 feet of trestle-roadway, connecting block to shore.

On June 27, 1910, a contract was made with J. Alphonse Lemay, of Portneuf, for the construction of a roadway from the shore to the isolated block and the enlargement of latter.

Owing to difficulties in procuring suitable timber in the market at such a time, contractor started work only in August, building first the specified inshore end approach of dry stone; then extending out the crib-work (open-face) on an average length of 296 feet, average width of 23·2 feet, and average height of 12·3 feet; the work mostly filled to top with stone-ballast; part of the 5 and 8-inch sheathing was placed, also floor stringers.

Up-stream face has a slope of from 1 in 2 to 1 in 3 feet; the east or down-stream face being plumb. Width on top is 20 feet from outside to outside of capping.

Contractor has also started work on foundations of two other cribs, some 200 feet in length, up to a height of 4½ feet, in readiness to be placed in position after high spring tides are over.

See Chief Engineer's report of 1909-10, page 108, for description.

Works were suspended end of November.

STE. FAMILLE, I. O.

Ste. Famille is situated on the north shore of the Island of Orleans, in the county of Montmorency, about 16 miles below Quebec.

The flooring of the wharf, which was broken in quite a number of places, was repaired and three floor-stringers were renewed.

These repairs were done from the 3rd to the 12th November, 1910.

The expenditure for the present fiscal year, 1910-11, amounts to $367.70.

ST. FIDÈLE.

St. Fidèle is situated on the north shore of the river St. Lawrence, 9 miles below Murray Bay, and in the county of Charlevoix.

During the present fiscal year, a sum of $1,100 was expended in removing the large quantity of dangerous boulders lying on each side of the wharf, on a radius of 100 feet, and now all danger to vessels has disappeared.

The expenditure for the present fiscal year, 1910-11, amounts to $1,100.

ST. FRANCIS RIVER.

This river takes its rise in Lake St. Francis, in the county of Beauce. It flows southwest through the counties of Beauce and Wolfe, crosses the northwest corner of the county of Compton, and takes a sharp turn to the northwest at Lennoxville; it flows through the counties of Sherbrooke, Richmond, Drummond and Yamaska, and empties into Lake St. Peter on its southern shore near the Yamaska river. It is 150 miles long; there are many falls and rapids in its course.

The river is navigable at its outlet for a distance of about 10 miles, to the first rapid, for boats drawing less than 4 feet of water, during the low water season.

Dredging operations were performed at Notre-Dame de Pierreville to remove the shoals in the steamboat channels to a depth of 7 feet at low water, by dredges of the W. J. Poupore Company, from June 16 to August 11, 1910, as per contract No. 7818, dated June 15, 1910.

484 cubic yards clay and sand were removed by dredge *Prince Willie,* on the 16th June, 1910.

25,650 cubic yards clay and sand were removed by dredge *Pontiac,* from June 17 to July 12, 1910, and

21,118 cubic yards clay and sand were removed by dredge *Duke of York,* from July 18 to August 4, 1910.

The work done amounted to 47,858 cubic yards clay and sand removed, and the expenditure under that head was $10,378.63.

ST. FRANCOIS, I. O.

St. Francois is situated on the eastern side of the Island of Orleans, in the county of Montmorency, 25 miles below Quebec.

During the present fiscal year, a movable slip was constructed and a new patent slip hoist was purchased.

The top of the headblock was completely re-levelled and a new building, to be used as waiting-room and freight-shed, was started and nearly completed, only some petty works and the painting is left undone.

The work was commenced on July 23, 1910, and completed on February 23, 1911.

The expenditure for the present fiscal year 1910-11, amounts to $4,761.93.

ST. FRANÇOIS DU LAC.

St. François du Lac, a post village and parish in Yamaska county, on the St. François river, falling into the St. Lawrence, on the south shore of Lake St. Peter, also a station on the Quebec, Montreal and Southern railroad, near the Sanitarium at Abenakis Springs. The village contains one Roman Catholic church, 1 bank, 5 stores, 3 hotels, 1 flour mill, 1 saw mill, 1 butter and cheese and 3 cheese factories, besides express and telegraph offices. Population of parish, 2,639.

The St. François du Lac wharf, built in 1908-9 consists of:—

1. A pile headblock 21 feet wide, 142 feet long outside face, upstream 48 feet of which is 13·2 feet above zero gauge, the remaining 94 feet being at 9·4 to be used at low water. Headblock protected by close-faced crib ice-breaker, 30 by 25 feet, sunk

in 8 feet of water and raising 16·17 feet above zero gauge, 8 feet of water all along headblock.

2. An earth and stone approach 800 feet long and 30 feet wide.

During June, July and August, 1910, the sum of $1,580.82 was expended in improving approach, drainage, &c., and in making stone riprap along grade leading to public road, and in erecting a store-house on headblock.

Work was done by day labour.

Dredging.

St. Francois du Lac, chef lieu of Yamaska county, on the south side of river St. François opposite the village of Pierreville, about 7 miles above the entrance of the river into the St. Lawrence, 28 miles north-east of Sorel.

Dredging operations were performed at St. François du Lac landing pier and the southern channel by dredge *Capital* as per contract No. 7806 with La Compagnie Industrielle de Sorel, from May 19 to November 14, 1910.

The work done amounted to 79,002 cubic yards of sand, clay and boulders removed, and the expenditure under that head was $15,149.57.

ST. FRANÇOIS RÉGIS.

St. François Régis (population 800), Labelle county, is on the Kiamika river. It is the head of a 10-mile stretch of navigation.

At its last session, parliament granted $2,000 for a small landing at this place, 10 miles above another proposed landing in Lac aux Ecorces. Construction of this landing was conditional on the advent of a regular traffic boat, which did not materialize during the past season, it was thought advisable to defer construction until some future date, when some kind of traffic is established.

Expenditure to March 31, Nil.

ST. GÉDÉON ISLAND.

St. Gédéon islands, in the parish of St. Gédéon, are situated on the south-east shore of Lake St. John, 39 miles west of Roberval.

During the month of March, boulders were removed around the wharf at a cost of $300.

STE. GENEVIÈVE.

Ste. Geneviève, a post village and parish of Jacques Cartier county, on Rivière des Prairies, 5 miles from Beaconsfield and 5 miles from Pointe Claire on Grand Trunk railway and Canadian Pacific railway. The village contains one church, one convent, three hotels, one butter and cheese factory, one telegraph office and eight stores. There are excellent mineral springs in the vicinity. Population 729, of parish 1,295.

The Ste. Geneviève approach to bridge across River des Prairies, built in 1890-91, consists of:—

1. A crib and span portion 164 feet 7 inches long, formed of 4 cribs, 26 feet 8 inches long (including icebreaker) and from 18 feet 5 inches to 20 feet wide sunk from 29 feet 3 inches to 30 feet apart; span formed of steel I beams.

2. A stone approach 76 feet long and 20 feet wide at top with sides rip-rapped.

During the spring, summer and autumn of 1910, a sum of $373.35 was expended in making urgent temporary repairs to flooring. Work was done by day labour.

ST. GODFROY.

St. Godfroy, in the county of Bonaventure, is a flourishing parish, having a population of 2,500 inhabitants, partly engaged in the fishing industry.

During the last fiscal year, the sum of $100 has been expended to repair damages done to the wharf by ice during the winter of 1909-10.

These repairs consisted in renewing some flooring planks, cap-pieces and fenders. The work has been carried out by day labour from June 15 to July 15.

ST. HILAIRE.

St. Hilaire, a post village in Rouville county, 1 mile from St. Hilaire station, on the Grand Trunk railway, 22 miles east of Montreal. It has eight stores, three hotels, one branch bank, two butter and cheese factories, two carding, one flour and two flax mills, and a Roman Catholic church. It is a well known summer resort, near St. Hilaire lake. Population about 250, of parish, 1,300.

From August 18 to 30, 1910, departmental dredge *St. Louis* worked at St. Hilaire, immediately upstream of public wharf. Some 2,432 cubic yards, scow measurement, of clay were removed in making a cut 365 feet long and to a depth of from 5 to 7 feet.

ST. IGNACE DE LOYOLA SOUTH.

St. Ignace de Loyola, a post village and parish in Berthier county, on the St. Lawrence river, close to the western end of Lake St. Peter, and 2½ miles from Berthierville station, on the Canadian Pacific railway, and Sorel, on the opposite bank of the St. Lawrence, in Richelieu county. It contains a Roman Catholic church and one store. Population of parish, 875.

The pile wharf, built by contract in 1908, consisted of:—

1. A pile headblock, 60 by 40 feet 4 inches at top, with ice-breaker inclined 1½ in 1, outside face standing in 10 feet 3 inches of water at low level and 12 feet above.
2. A pile approach, 144 by 20 feet, with sides rip-rapped 1½ in 1 along upstream side, and 1 in 1 along other side.

The headblock and 22 feet of approach having been greatly damaged by ice, their reconstruction in solid close-faced cribwork, but on a reduced scale, was begun in the middle of September, 1910, and completed at the end of December following.

The new headblock is 49½ by 30 feet, including ice-breaker, and rises 8 feet above zero gauge. The crib approach is 22 by 20 feet at top. An incline connects new construction with old one.

Total expenditure, $4,777.17.

ST. IRÉNÉE.

St. Irénée is situated on the north shore of the river St. Lawrence, in the county of Charlevoix.

During the present fiscal year, the headblock of the wharf was repaired; a new trestle tower was erected; a new patent slip hoist was also installed.

The old building was demolished and all the necessary materials for the construction of a new building were purchased; it was impossible to begin that construction before March 31, 1911, and it is necessary to complete same during the fiscal year 1911-12.

The work was commenced on the 1st and abandoned on the 31st March, 1911.

The expenditure for the present fiscal year 1910-11, amounted to $2,958.72.

ST. JEAN. I. O.

St. Jean is situated on the south shore of the Island of Orleans, in the county of Montmorency, 18 miles below Quebec.

During the present fiscal year, the movable slip, which had been broken by the ice, was thoroughly repaired and made good.

The building, constructed a year ago, was given three coats of paint, and minor repairs were made to the flooring.

A small shed was also built on the shore off the wharf to place the coal oil tanks used in connection with the light on the wharf. This was done in order to prevent danger by fire.

The work was commenced on the 1st June and completed on the 23rd July, 1910.

The expenditure for the present fiscal year 1910-11, amounts to $1,306.32.

ST. JEAN DESCHAILLONS.

Out of the appropriation of $3,000, voted for fiscal year, 1910-11, for continuation of work on shore side-wharf and roadway approach, also building of sheds, in connection with government wharf at St. Jean Deschaillons, only $2,000 were expended; the balance not being found to complete, in a satisfactory manner, and make secure remainder of work. Of the expenditure of $2,000 a sum of $416 went to pay for timber which, by right should have been paid out of a balance remaining at expiration of fiscal year 1909-10.

A second item of $353 was also paid for square cedar timber, to be used on side wharf and trestle roadway.

The remaining $1,231 were expended on urgent repairs to roadway approach adjoining the 29 feet elevated block at northeast end of side wharf, undermined and washed out by rush of spring freshets and heavy rains, in months of April, May and June; the heaviest and principal expenditures of the season were, however, incurred in building a freight shed and waiting-room.

A movable freight shed of 12 by 24 feet, with galvanized iron roof, was located, for season of navigation, on northeast end of headblock of wharf; secured against wind and sea by strong iron squares screwed on to building and planking of wharf. At close of navigation, the shed was moved up to shore end of wharf and placed on blocks above probable high spring tides.

A waiting-room of 16 by 26 feet, outside measurement, with 10 feet posts, was also built on block erected in 1907, at south end of pier; part of block was cut down 5 feet from top, leaving a strong bulkhead in back to keep off land-slides, and after placing some five toises extra of stone in block, the foundation timbers of structure were placed and securely bolted to uprights extending downwards and then carried upwards to completion.

Galvanized iron was placed on roof; both the inside and outside of building got two coats of good paint; the interior divisions are: room for men; room for women, also a small office for the wharfinger or agent of steamer; height between floor and ceiling, 8·9 feet; trap-door in ceiling leads up to a garret under roof, most convenient for storage of tools and working plant.

On hand, carefully piled up on top of retaining wall, are some 24,000 feet B.M of square sawn cedar, from 8 to 18 inches; 12 pieces of round cedar 20 to 30 feet long, 10, 11 and 12 inches at butt; 3,000 feet of new tamarack 3-inch deals, 9-12 inches wide and 12-13 feet long, to be placed this coming season on trestle-roadway after its removal on to retaining wall, with the object of reducing the present steep grade of nearly 1 in 4 and 5 feet when leaving trestle-planking; also to prevent disintegration and caving in of roadway at this point.

The whole hill, bordering the beach, rising almost perpendicular from 40 to 75 feet, is of grayish clay, used in manufacturing brick, in the 20 or more brickyards strung along the shore to the west of the semaphore.

When wet, this clay, on any ordinary ascent of the road, makes difficult hauling even of light loads. The location of the government landing pier at Cap à la Roche seems to escape notice, also the need and importance of providing easy access to and from it on land. The Department of Marine had at work, last season off, above and

below the wharf, in connection with dredging of Ship Channel: 4 large dredges 4 large tugs (8-11 feet draft), 8 of the largest scows; 2 stone-lifters; 1 stone-breaker; 1 large lodgingscow; 1 forge and repairing scow, all provisioned and supplied from Deschaillons.

Work at wharf started June 8, and suspended September 8.

ST. JEAN PORT JOLI.

The village of St. Jean Port Joli, in the county of l'Islet is situated on the south shore of the St. Lawrence, 60 miles below Quebec. Spring tides rise 21 feet; neap tides, 13 feet.

The wharf has a total length of 454 feet; a depth of water of 5 feet is left at the outer end, at low water spring tides. The wharf consists of a shore part or approach composed of platforms, connecting piers, 180 feet long and 18 feet wide; a middle section 174 feet in length of open cribwork, and a head block 100 feet long, 30 feet wide of close-faced cribwork.

On the complaint of navigators that an opening existing, near the shore end of the wharf, was a cause of trouble for schooners at high tides, it was closed with cribwork.

The flooring near the inner end was renewed on a surface of 1,134 square feet. The sheathing on both sides of the wharf was also repaired and 25 feet of capping pieces were renewed.

The work was done during the months of August and September.

Expenditure $1,100.47.

ST. JERÔME.

St. Jerôme is a village situated on the southeast shore of Lake St. John, 24 miles east of Roberval, it is a very good farming parish.

For details from 1908-9, *see* Public Works Report, page 129, part IV.

The repairs were completed during the past fiscal year; the wharf was raised from 3 to 5 feet; new stringers were put on; the flooring was done with 4-inch deals, and the whole of the wharf was sheathed.

Work started on May 7, 1910, and was completed on September 9.

Amount expended $3,397.78.

On February 28, an additional sum of $400 was granted for the removal of stones, and the balance of the old crib, which was damaged by ice in 1909. This work was done during the month of March. A part of the old cribwork is yet to be removed, as stated above, this old cribwork was a part of the headblock which was carried away by the ice in the spring of the year 1909.

ST. JOSEPH DE LETELLIER.

St. Joseph de Letellier in the bay of Seven Islands is situated in the county of Saguenay, 200 miles below Tadousac. It is the Episcopal seat of the Roman Catholic Church for that part of the north shore from Rivière Godbout to Natashquan. There is a large Indian reserve, fur is the most important traffic, there is also a traffic in fish.

For details of construction from 1908-9 to 1909-10, *see* Public Works Report, 1909-10, page 111, part IV.

On January 9, 1911, a contract was awarded to Nap. Warren, contractor of Chicoutimi, for the completion of crib No. 4, which is 40 feet by 30 feet; the construction of an approach 40 feet in length by 20 feet in width; two piers 30 by 20 feet; one pier 30 by 30 feet; one pier 40 by 30 feet, and a head pier 60 by 40 feet, also one span 25 by 20 feet and three spans 25 by 30 feet wide. The whole having a length of 424 feet.

The completion of pier No. 4, already built up to the underside of the corbels, will consist in the placing of the corbels, floor stringers, flooring, caps, corner sheathing, walings and fenders and the filling with stone from high water level up to the flooring.

ST. JOSEPH DE SOREL.

St. Joseph de Sorel, a post village and parish in Richelieu county on the South Shore railway, and on the Richelieu and St. Lawrence rivers at the southwest end of Lake St. Peter, the port of call for the steamers of the Richelieu and Ontario Navigation Company. The village contains the shops of the Department of Marine and Fisheries, for the construction and repairs of the government vessels and barges, employing 700 workmen. It contains also a Roman Catholic church, four stores, two saw and flour mills. Population of parish, 1,400.

On November 16, Order in Council was passed accepting the tender of Mr. Jos. Cardin of Sorel, for the construction of a landing pier at St. Joseph de Sorel. Contract price, $9,100. Construction was begun at the end of November and the contract completed March 31, 1911.

The structure consists of:—

A headblock 72 feet 3 inches by 46 feet 2 inches, formed of a pile substructure up to 2½ feet above zero gauge, and a close-faced crib superstructure the flooring of which stands 13 feet 6 inches above extreme low water level; the whole outside face in 12 feet of water.

2. A close-faced crib approach from 110 feet to 119 feet long and 18 feet wide.

3. A stone approach 74 by 18 feet with sides rip-rapped and sloped 1 in 1.

Total expenditure for fiscal year 1910-11 is $9,043.65.

Dredging.

From April 18 to 23, 1910, departmental dredge *Ottawa* worked in Richelieu river, opposite the government shipyards, immediately upstream of marine wharf, some 3,200 cubic yards, scow measurement, of clay being removed.

From April 25 to June 11, same dredge worked at the St. Joseph Point removing 34,900 cubic yards of sand. This in order to facilitate the entrance of the Richelieu river particularly to large boats.

ST. LAMBERT.

St. Lambert, a post village in Chambly county, on the St. Lawrence river and on the Grand Trunk railway, 6 miles from Montreal, and connected with it by the Victoria bridge.

St. Lambert is a railway junction on the Grand Trunk railway, Intercolonial railway, Quebec, Montreal and Southern and Central Vermont roads. It contains four churches (Methodist, Episcopal, Presbyterian and Roman Catholic), twelve stores, one lumber mill, one branch bank (Toronto), express and telegraph offices, together with an academy and Roman Catholic day school. Population of parish, about 2,000.

The St. Lambert protection works, built in 1900-02, in order to guard the river bank against erosions and damages caused by ice during spring floods, consists of:—

1. In a solid cribwork structure, 666 feet long, 21 feet wide at base, 5 feet at top and 20 feet high, starting 1 foot above zero gauge. The space between wall and bank is filled in with stone; movable guard railing on top, 675 feet long.

2. A 193½ foot rip-rap, 25 feet wide, extending from the east end of cribwork.

During August, 1910, a sum of $100.08 was expended in renewing 300 feet, B.M., of 3-inch spruce planks on top of crib. Work was done by day labour.

ST. LAURENT, I. O.

St. Laurent is situated on the north shore of the Island of Orleans, in the county of Montmorency, 10 miles below Quebec.

During the present fiscal year, the machinery of the automatic movable slip, which had broken, was thoroughly repaired at a cost of $371.75; minor repairs were also made to the wharf.

The expenditure for the present fiscal year, 1910-11, amounts to $516.40.

ST. MARC.

St. Marc de Cournoyer, a post village in Vercheres county, on the Richelieu river, 9 miles from Belœil station, on the Grand Trunk railway, 15 miles from St. Hyacinthe. It contains one Roman Catholic church, three stores, one saw-mill, two door and chair factories, &c., besides one butter and two butter and cheese factories, and a telephone office. Population of parish, 950.

Departmental dredge, *Nipissing*, worked at St. Marc, opposite hay shed situated on cadastral lot No. 65. From October 19 to 25, 1910, 3,120 cubic yards, scow measurement, of clay were removed, this in order to facilitate the loading of hay barges.

ST. MÉTHODE.

St. Méthode wharf, is on the River Ticouabé, 7 miles from its mouth, opposite the village of St. Méthode, in Chicoutimi county, and 28 miles from Roberval.

In 1907-8, a wharf on piles, 40 feet by 40 feet, was built with an 'apron' facing the current, 40 feet along shore; the 'apron' is also built on piles and sheathed.

During the fiscal year 1910-11, the upper part of the wharf, on a length of 43 feet, a sheathing, 3 by 8 inches by 12 feet, was placed; a freight shed, 24 by 24 by 14, sheathed with one-inch plank was built.

Work started on the 1st of July and was completed on the 15th of September, 1910, expenditure, $999.70.

ST. MICHEL DE BELLECHASSE.

St. Michel, in the county of Bellechasse, lies on the south shore of the St. Lawrence, 15 miles below Quebec.

The site of the village is picturesque and the place is frequented as a summer resort. The coasting steamer *Champion* calls twice a day, giving good facilities for the shipment of farm produce.

Spring tides rise 21 feet; neaps 13 feet.

The public wharf at St. Michel is 1,100 feet long, and 30 feet wide, with a head-block 50 by 40 feet.

Between June 5, and July 20, 1910, the sum of $1,499.56 was expended in making the following repairs to the wharf:—

The flooring was renewed on a surface of 16,920 square feet, with spruce planks three inches thick.

The slip built, three years ago, near the outer end on the west side of the wharf, which has settled was raised and levelled. Two mooring posts, 10 stringers, one ladder and six fenders were replaced.

The shed standing on the head of the wharf was also painted.

Dredging.

In the month of May, before going down to Rimouski, the departmental dredge *Progress* worked 15 days at St. Michel to complete the work commenced there.

Some 7,000 cubic yards of hard clay and big boulders were removed, and a channel starting from the wharf about 1,000 feet in length, and 200 feet in width, is now completed where a uniform depth of 10 feet is available at low water spring tides, this allows the coasting steamer *Champion* to draw near the wharf at any time of the tides.

ST. NICHOLAS.

The amount of $1,000, appropriated for expenditure during the fiscal year 1910-11 at St. Nicholas, County Lévis, was used in completing repairs to the buildings, belonging to the government, which were included in the purchase of Baker's wharf in former years; they consist of a stable of 24 by 100 feet and a dwelling house, the latter being partly and occasionally occupied by wharfinger and partly for a waiting room, the cellar is used for storage purposes; both buildings were in a very bad state, threatening to collapse.

Seventeen thousand cedar shingles were used on one whole side of roof of stable and sundry repairs on other side where needed.

The other building, 24 by 30 feet, was thoroughly overhauled from cellar to garret, both inside and outside.

The foundation timbers, being all rotten, were replaced by a solid masonry foundation of stone and mortar, giving a clear six feet high cellar for storage; cubic contents of masonry 33 cubic yards 8,200 feet B.M. of boards were used in work; roof renewed and covered with 1,327 pounds of the best galvanized iron; four doors (inside and outside) and six window frames renewed; new stairs to garret; 1-inch spruce flooring laid over old floor and other woodwork; the whole of the inside and outside of building was painted; waiting-room was partitioned off for men and women.

A vertical upright post and horizontal top bar at outer end of lifting slip, although, apparently sound, were found defective, and replaced by others of pitch pine, taking 113 feet B.M.

The work was well and cheaply done and lasted from August 5 to November 5.

See Chief Engineer's Report of 1909-10, pages 113, 114 for description.

ST. OMER.

St. Omer a prosperous parish on the north shore of the Baie des Chaleurs, county of Bonaventure, some 42 miles from Matapedia.

A passenger boat plies semi-weekly between St. Omer and Dalhousie.

During the last fiscal year, seven blocks of the wharf, built in 1908 have been sheathed with 4-inch deals on the east side and with 3-inch deals on the other side. A freight shed of 16 by 22 feet has also been constructed.

The work was begun on the 11th of July and completed on the 1st of October; it has been carried out by day labour at a cost of $1,311.69.

ST. OURS.

St. Ours an incorporated town in Richelieu county, 2 miles from St. Roch station on the shore line division of the Quebec, Montreal and Southern railway. It contains one Roman Catholic church, ten stores, one hotel, one wagon factory, one cheese factory, one carriage and plough factory and one sawmill. Population, 900.

At the end of October, 1910, the construction was begun of a landing pier at St. Ours between the Marchessault and Tetrault wharfs. The proposed work being a low and high level pile wharf, 151 feet 9 inches extreme length, including a 19 foot 3 inch icebreaker, inclined 1½ in 1, and 32 feet wide. The low level portion 109 feet 3 inches long, standing 9 feet above zero gauge, and the other 23 feet 3 inches long, 6 feet higher. There are 8 feet of water all along outside face. The ground behind the wharf for a width of 35 feet being levelled off.

Work was completed March 31, 1911, with an expenditure of $5,531.86. Work was done by day labour.

The land for the wharf has been guaranteed to the Crown, free of charge by the municipality.

A large hay and general freight shed will be erected on the wharf when appropriation of 1911-12 is available.

Dredging.

Departmental dredge *Nipissing* worked at St. Ours, on October 28, 1910, removing 240 cubic yards, scow measurement, of clay along the front face of new public wharf.

ST. PAUL DE JOLLIETTE OR D'INDUSTRIE.

St. Paul d'Industrie, a post village in Joliette county on L'Assomption river, and a station called Crabtree's Mills, on the Canadian Quebec Northern railway, 5 miles from Joliette. It contains one Roman Catholic church, four stores, one hotel, saw and flour mills and a factory for making tubs and window sashes. At Lavaltrie station it has express and telegraph facilities. Population of parish, 800.

At the beginning of October, 1910, Order in Council was passed authorizing the acceptance of tender of Mr. Jos. Renaud amounting to $2,478 for the construction of a reinforced concrete icebreaker in river Ouareau at Pointe Rielle, parish of St. Paul de Jolliette.

Work was begun immediately and the pier completed December 6 following.

On October 21, an extra of $360 was awarded the contractor for the heightening of pier 5 feet for its whole length.

The pier has an extreme length at bottom of 37 feet 7 inches and 8 feet 11 inches extreme breadth; 22 feet by 6 feet 7 inches at top, and 28 feet high. The whole resting on a substructure of 35 spruce piles. Total expenditure, including inspector's salary, &c., $3,129.03.

ST. PAUL DE L'ILE AUX NOIX.

St. Paul de l'Ile aux Noix, a post village and parish in St. John's county, on the Richelieu river, 2½ miles from Stottsville, on the Grand Trunk railway, with port at Ile aux Noix. The locality is frequented by sportsmen for the fishing and hunting in the vicinity. The village has one Roman Catholic church, two stores, one hotel, one butter and cheese factory, with Bell telephone service. Population of parish, 600.

The public wharf at St. Paul de l'Ile aux Noix, built in 1897-8, consists of:—

1. A crib headblock, 61 by 32 feet, standing 17 feet high in 9½ feet of water at low level.

2. A trestle approach, 156 feet long and 20 feet wide, with guard railing on both sides.

3. A stone and earth embankment, 98½ by 20 feet wide, sides and outer end sloped 1 in 1.

4. A store-house, 16 by 20 feet, at downstream end of headblock and a derrick to facilitate freight handling.

At the end of September, 1910, a sum of $45.47 was expended in renewing some planks in flooring.

ST. PIERRE LES BECQUETS.

St. Pierre les Becquets, a post village and parish in Nicolet county, on the St. Lawrence, 4 miles from Batiscan, on the Canadian Pacific railway, 19 miles east of Three Rivers. It contains one Roman Catholic church, ten stores, two temperance hotels, one carding mill, two saw-mills, four grist-mills, one tomato canning factory,

besides a large convent with 70 pupils; also express and telegraph offices. Population of parish, 1,900.

From May 20 to November 18, 1910, L. Cohen and Sons' dredge, *Central City,* worked under contract in the St. Lawrence, opposite St. Pierre les Becquets, completing the 10-foot channel leading to public wharf. This channel is over 3,000 feet long and 75 feet wide. Some 61,785 cubic yards, scow measurement, of hard clay and boulders were removed at a cost of 22 cents per yard.

ST. PLACIDE.

St. Placide, a post settlement in Two Mountains county, 10 miles from Ste. Scholastique, on the Montreal and Ottawa (North Shore) branch of the Canadian Pacific railway. It contains one Roman Catholic church, four stores, one hotel, two wagon factories, one carriage factory and one butter factory. Population, 400.

From June 18 to July 23, 1910, L. Cohen & Sons' dredge, *Nehoc,* worked in Lake of Two Mountains, opposite St. Placide, completing the downstream branch of V shaped channel leading to wharf. This branch is over one mile long, 100 feet wide, and to a depth of 9 feet. Average depth of cut made, 4 feet; quantity, 17,510 cubic yards, scow measurement, of hard clay. Contract price, 21½ cents a cubic yard.

ST. ROCH DES AULNAIES.

St. Roch des Aulnaies is situated on the south shore of the St. Lawrence, in the county of L'Islet, 70 miles below Quebec.

The wharf was constructed ten years ago; since its construction the mud accumulated to a great extent along its inner face and the depth of water available at high tides was greatly lessened.

To improve conditions, the mud was removed on a length of 150 feet; a width of 30 feet, by a mean depth of 5 feet.

To prevent refilling, an opening of 10 feet wide, 5 feet high, was cut through the lower part of the wharf near the inner end, to keep the water moving; it is expected that this will diminish the silt deposit.

For the accommodation of navigators and the people at large, a building, 20 feet square, was erected upon the head of the wharf.

These works were done between the 1st of July and the 14th of September.

Expenditure, $1,198.91.

ST. SULPICE.

St. Sulpice, a post village in l'Assomption county, on the north shore of the St. Lawrence, 24 miles below Montreal, 5 miles from l'Assomption, on the line of the Canadian Northern Quebec railway. It contains one Roman Catholic church, two stores, one hotel. Population of parish, 650.

The St. Sulpice wharf, bought from the Richelieu and Ontario Navigation Company in 1907, and partly rebuilt and enlarged since, consists of:—

1. A crib headblock, 92¾ feet long at bottom, 78¾ feet at top on account of icebreaker, 41¾ feet wide, upstream of approach, and 40 feet downstream, outside face standing 21 feet high in 11 feet of water at lowest level.

2. A crib approach, 151 by 22-2 feet, with icebreaker all along.

3. A plot of land adjoining wharf and extending to public road, of irregular shape, forming an area of 4,575 square feet.

During September and October, 1910, the sum of $886.29 was expended in placing a 6-inch concrete flooring over the whole of headblock and 50 feet of approach, placing an iron pipe guard railing on the approach and in minor improvements.

Work was done by day labour.

Dredging.

Departmental dredge *No. 3* worked at St. Sulpice from June 1 to 4, 1910, removing some 1,680 cubic yards, scow measurement, of clay and sand immediately upstream and downstream of public wharf.

ST. ZOTIQUE.

St. Zotique, a post village and parish in Soulanges county on the St. Lawrence, and a station on the Grand Trunk railway, 2 miles from Coteau Junction. The village contains 2 stores, 2 hotels and a telegraph office. Population, 400; of parish, 1,000.

The St. Zotique wharf, built in 1881-84 and added to and repaired several times since, consists of:—

1. A crib headblock 132 by 24 feet, including ice-breaker, sunk 15 feet high in 10 feet of water at lowest level.

2. A 12-foot crib and span approach 1,082 feet long, and formed of 25 piers, close-faced crib structure and concrete superstructure, and steel spans, with iron pipe guard railing on both sides.

3. A storehouse 18 by 20 at western intersection of headblock and approach.

During October and November, 1910, the sum of $592.42 was expended in renewing part of flooring and stringers of headblock; completing the guard railing of approach, begun the preceding year, and improving roadway to wharf. Work was done by day labour.

SABREVOIS.

Sabrevois, a post village in Iberville county, on the Richelieu river, and a station on the Quebec, Montreal Southern and Rutland railroad, 7 miles from Iberville and St. Johns. It has 2 churches (Roman Catholic and Episcopal) 2 stores, 1 hotel, boy's college and ladies' school, 1 lumber and saw mill, 2 butter and cheese factories, besides express, telegraph and telephone offices. Population about 400.

The Sabrevois wharf consists of:—

1. A pile headblock 105 feet 7 inches long and 34½ feet wide with cribwork ice-breaker.

2. A trestle approach 130 by 30 feet.

3. A stone embankment 546 by 20 feet with slopes of 1 in 1 on both sides.

During September and October, 1910, the sum of $191.39 was expended in splicing 6 piles; repairing the front face and north-east corner of headblock, and in renewals to flooring. Work was done by day labour.

SAGUENAY RIVER.

Dredging.

The River Saguenay named *Pitchitanichetz* by the Indians, flows from the north-east end of Lake St. John, and falls 40 to 50 feet, says Bayfield, through two narrow and rugged channels, the most northerly of which is called the Grande Décharge, one mile wide at its mouth, and 9·56 nautical or eleven statute miles in length, and the other, or the most southerly, the Petite Décharge, half a mile wide at its mouth, and 8·48 nautical or 9·75 statute miles in length.

It discharges the water of Lake St. John into the St. Lawrence, to which it contributes a body of water only inferior to that which is supplied by the Ottawa.

'This very remarkable and extraordinary river, says Bayfield, resembles a long and narrow mountain loch, for the first 52·40 nautical, or 60·26 statute miles, from its confluence with the St. Lawrence at Tadousac up to the head of the Baie des Ha Ha.'

The Saguenay is navigable for the largest ships up to Pointe aux Roches, fifty-five nautical or 63·25 statute miles from the St. Lawrence at Tadousac, and schooners and other vessels with the assistance of the flood tide, can ascend to Chicoutimi, eight statute miles farther.

In winter, the Saguenay is generally frozen over from the Terres Rompues to a point three miles below Chicoutimi, and from Baie des Ha Ha, down towards the Iles St. Louis, from the middle of December to the first or second week of May.

Navigation closes about the middle of November.

The first trip of the passenger steamers varies from May 5 to 12, and the last trip from November 14 to 17, between Tadousac and Chicoutimi.

The work of improvements of the channel of the river was commenced in 1879, and has since been carried on by means of spoon and elevator dredges.

The work done during the last fiscal year was the continuation of improving the channel, the dredging was done at three different points.

1. Caribou range.
2. Valin range, upstream.
3. Valin range, down stream.

The material dredged is clay, sand and small boulders. Quantity removed 143,467 cubic yards.

The work was under contract to the International Dredging Company of Montreal with the spoon dredge *Algonquin*. Work started on June 15, 1910, and completed November 12, 1910.

SHIGAWAKE.

Shigawake a post village on the north shore of the Baie des Chaleurs, county of Bonaventure.

On March 11, 1911, a contract was entered into with Mr. Thos. P. Charleson, for the construction and completion of an extension to present wharf at Shigawake, at a cost of $9,385.

During the last fiscal year, the sum of $1,678.04 has been expended for material delivered.

Work will commence next June.

SILLERY.

Sillery is situated on the north shore of the river St. Lawrence, in the county of Quebec.

During the present fiscal year, the whole of the flooring and flooring stringers were renewed, the movable slip was thoroughly repaired, the southwest corner of the wharf was also completely repaired; the sheathing of the wharf was renewed in a great many places, also minor repairs were made to the waiting room.

A freight shed was constructed, the dimensions of said building are: 10 feet wide by 16 feet long and 8 feet high.

The above-mentioned repairs were commenced on the 22nd August and completed on the 10th November, 1910.

The expenditure for the present fiscal year 1910-11, amounts to $2,983.98.

SOREL.

Sorel, an incorporated city, capital of Richelieu county on the right bank of river Richelieu, at the mouth of lake St. Peter, on the Quebec, Montreal and Southern railway, 52 miles northeast of Montreal, 33 miles from St. Hilaire. Sorel contains gas and water works, a court of justice, a prison, a fine market, manufactories of engines, boilers, mill machinery, saws, stoves, ploughs, agricultural implements, grates for steam boilers, doors, sashes, leather, bricks, three printing offices, English and

French newspapers, two branch banks, eighteen hotels, Roman Catholic and Anglican churches, two fine Roman Catholic colleges, a protestant model school, a convent, a hospital, an orphanage, telegraph, telephone and express offices and about fifty stores. Population (census, 1901) 7,057. Population (1907) estimated 8,500.

High Level Wharf.

Work on the contract entered into in 1907, between Crown and Mr. J. E. Beauchemin of Sorel for the building of cribs in front of trestle wharf built in 1901-5, was continued this year. Contract including extra allowed later, called for:

1. The construction of six close-faced cribs of a total length of 687 feet 6 inches, from 18 to 40 feet wide at bottom, from 15 to 18 feet wide at top, standing 41 feet high in 25 feet of water at lowest level and resting on a pile foundation, 1,374 in all razed to ground level.

2. Dredging to 25 feet below E. L. W. L., of a seat for above.

3. Placing 1,116 cubic yards of stone to form revetment at northeast end of old structure in the St. Lawrence.

During the year, the ballasting with stone of all the cribs was completed and the back earth filling about four-fifths done. Last estimate, up to March 31, 1911, certified $161,846.92 of work completed. Original contract price was $125,000 and first extra $37,839.92 totalling $162,839.92.

Extension to Richelieu and Ontario Wharf.

The government high level wharf at Sorel adjoins upstream in Richelieu river, the old Richelieu and Ontario wharfs. The construction of a crib extension, mentioned above, by the fact of their projecting from 13 to 28 feet from face of private wharf, caused the further use of same very difficult, if not impossible.

As a consequence, in the autumn of 1909, the Crown entered into an agreement with the Richelieu and Ontario Company, by which the latter consented to contribute $2,000 towards the construction of a landing pier, filling in the gap made by the government works.

In April, 1910, a contract was entered into between the Crown and Mr. J. E. Beauchemin, contractor of the high level extension, for the construction of:—

1. A pile substructure up to one foot above zero gauge, composed of 162 spruce piles driven in from 22 to 10 feet of water.

2. A close-faced crib superstructure, 163 feet 3 inches long, outside face, from 13 to 28 feet wide, extending 12 feet 4 inches high from one foot above zero gauge.

Construction work was begun at the beginning of October, 1910, completed March 31 following.

Expenditure, $8,500.

Breakwater.

On August 1, 1910, order in council was passed authorizing the acceptance of tender of Mr. D. G. Stewart, of Ottawa, at $6,350 for the construction of a breakwater immediately downstream of government high level wharfs at Sorel, opposite Elizabeth street. Contract called for the construction of a structure 500 feet long with outer 14-foot wing, standing 12 feet above zero gauge, and composed of two rows of piles 6 feet distant, centre to centre, with stone filling, connecting rods and fenders, piles of same row being two feet distant, centre to centre.

Construction was begun at the end of August, 1910. At the end of March, 1911, all piles had been driven in, the 12 by 12-inch fenders securely bolted, and 325 feet of stone ballast, from outer end, put in place. An estimate of $5,542, less 10 per cent drawback, has been certified for work done.

Ice-pier.

The ice-pier in Richelieu river, above the railway bridge and opposite Sheppard's Mills, built between 1888 and 1892, was extensively repaired during October, November and December, 1910, and January, 1911. The old structure was razed down to one foot above zero gauge and rebuilt in 10 by 12-inch spruce and hemlock.

When complete, the pier will be close-faced, 30 by 25 feet, standing 20 feet above zero gauge, with upstream face inclined 1½ in 1 from 8 feet above lowest water.

When work was suspended January 31, the structure was about four-fifths completed, with an expenditure of $3,060.80. Work will be resumed as soon as new appropriation is available.

Dredging.

The Lanctot basin is immediately downstream of 'L' shaped government high level wharf.

Departmental dredge, *Challenge,* worked in this basin from September 19 to November 19, 1910, taking out some 22,100 cubic yards, scow measurement, of sand and clay.

STRATFORD CENTRE.

Stratford Centre, a post village in Wolfe county, on the Maskinonge river, 6½ miles from Garthby station, on the Quebec Central railroad, with port on Lake Aylmer. It is 11 miles from Lake Weedon, and 14 miles from D'Israeli. It has one Roman Catholic church, five stores, one hotel and five saw-mills. Population about 800.

On January 24, 1911, order in council was passed authorizing the acceptance of McLaughlin Bros.' tender for the construction of a landing pier in Lake Aylmer at Stratford. Contract price, $5,975.

The work consisted in building:—

1. A close-faced and stone filled crib headblock, 40 by 40 feet, standing 10½ feet high in 4½ feet of water at ordinary low level.

2. A crib and span approach, 308 feet long and 16 feet wide, composed of 11 close-faced and stone filled crib piers, 8 by 16 feet, and 11 spans, 20 by 16 feet.

3. A stone approach, 194 feet long, 18 feet wide at top, with sides rip-rapped and sloped 1 in 1.

Construction was begun in the middle of February, 1911. On March 31, all the cribs had been sunk in place, stone ballasted, and complete up to the floor stringers. The stone approach was about 60 per cent done.

TADOUSAC.

Tadousac, in the language of the Montagnais Indians, signifies 'Knolls' (Mamelons).

Tadousac harbour is on the eastern side of the Saguenay and a mile within Pointe aux Vaches. It is a bay between Rouge and Ilot Points, with a sandy beach at its head; and rather more than half a mile wide and a third of a mile deep.

On the 18th of July, 1910, a contract was awarded for the construction of a wharf for the amount of $31,795.

During the last months of 1910, a pier 81 feet long was sunk and built to 4 feet above low water; the cribwork from the pier to shore was commenced on both sides; on the north side it is built to an average height of 14 feet to shore, on the west side for 10 feet in length, about 8 feet in height.

The blasting for the road is completed; the concrete retaining wall for a length of 633 feet was built, except the cap, for 100 feet in length. The filling in earth was commenced and was continued for a part of the winter.

Work started on the 1st of August, 1910, and was resumed about the 15th of December.

Amount expended, $14,175.35.

TADOUSAC (L'ANSE À L'EAU).

L'Anse à L'Eau, in Tadousac, Saguenay county, is about one mile above the mouth of the Saguenay, and is situated upon its northeast side.

General repairs were done to the wharf during the past fiscal year.

Expenditure, $199.14.

This expenditure was made during the month of September.

THREE RIVERS.

The city of Three Rivers is situated on the northern bank of the St. Lawrence, at the mouth of the River St. Maurice, 78 miles below Montreal, and 82 miles above Quebec. Population, 14,500.

In May, on the 18th, 1910, a contract was entered into with Messrs. J. J. Collins and V. W. Giroux, for the construction and completion of a section of a timber dock and ice-breaker at the western end of the harbour, at the windmill.

The first concession of land was made by the Crown on 15th August, 1648, to the corporation of the Commune of Three Rivers and, forty-two years after, in 1690, half an arpent of land was granted by the said corporation for the erection of a small windmill at the site now occupied by the signal office at the southwest limit of the Quay Bureau. Owing to the height of the buildings in the vicinity of the said windmill, another grant of half an arpent was made on the 13th of May, 1781, to Mr. Nathan Day, who has constructed a stone windmill now standing at the site of the new work.

This windmill has been considered until recently to have been built during the French régime in 1708.

The work to be done consists principally of three items: The construction of 500 feet of timber dock; the construction of 115 feet of crib-ice-breaker; an embankment 100 feet in width, on top, at the back of the proposed dock and the ice-breaker and for a distance of 400 feet northwest of the ice-breaker. The western side of the embankment is to be protected by rip-rap to a distance of 400 feet from the ice-breaker to the boundary line.

TIMISKAMING.

The departmental dredge, *Queen*, worked at the Long Sault dam, at the foot of Lake Timiskaming, during the whole of the past season (May 17 to November 15). The work consisted in removing to grade, at elevation 870, a cut 600 feet long, from 25 to 50 feet wide, west of the axis to the head race of the regulation dam on the Ontario side of the island, the area covered during the past season being 1,734 superficial yards, and the total area dredged to date 2,317 yards. The material consists of blasted boulders, and hard digging is greatly handicapped by the small size of the dredge. The actual dredging for the season totals 6,156 cubic yards.

TROIS PISTOLES.

Trois Pistoles, in the county of Temiscouata, is an important village on the Intercolonial railway, 25 miles below Rivière du Loup. The land in the vicinity is fertile and the place is flourishing.

It is somewhat frequented as a summer resort. Along the river Trois Pistoles, stand large saw and pulp mills. The government wharf is located on the west side of the entrance to the harbour.

The sum of $499.99 was expended during the fiscal year ended March 31, 1911, to perform repairs on the wharf and to the breakwater.

The stringers and flooring on the wharf were renewed on a length of 45 feet by the whole width of the wharf; 30 feet of the railing was also repaired.

The capping pieces and three snubbing posts, which were carried away by ice, were replaced on the breakwater.

YAMACHICHE RIVER.

This river takes its rise in the Laurentide mountains, flows through the county of St. Maurice, empties into Lake St. Peter, about 16 miles above Three Rivers.

The river is navigable at the outlet for a distance of about one and a half miles, to the first bridge in the village, during the season of spring freshets.

Population of the village 1,099, of the parish, 2,149. Export, hay, &c.

Dredging operations were performed at Yamachiche to remove the shoals in the steamboat channel to 6 feet at low water by dredge *Moore, No. 2,* of the T. F. Moore Co., from July 14 to September 13, 1910, as per contract No. 7938, dated August 23, 1910.

25,884 cubic yards clay and sand were removed and the expenditure under that head was $5,332.61.

YAMASKA RIVER.

This river takes its rise in the township of Bolton, in the county of Brome. It forms an outlet for several large lakes and has a course of about 90 miles. It flows through the counties of Brome, Missisquoi, Rouville, Bagot, St. Hyacinthe, Richelieu and Yamaska, and empties into the head of Lake St. Peter on the southern side, 8 miles below Sorel.

Dredging operations were performed at Yamaska to remove the shoals in the steamboat channel to 6 feet at low water, by dredges of the W. J. Poupore Co., Ltd., from May 4 to July 9, 1910.

The work done amounts to 73,469 cubic yards of material removed and the expenditure under that head was $13,242.13.

VALLEYFIELD.

Valleyfield, an incorporated town, port of entry and port of call for the St. Lawrence river steamers, in Beauharnois county on the south of the St. Lawrence river, at the head of the Beauharnois canal and at the foot of Lake St. Francis. It is a station on the New York Central and on the Grand Trunk railway (Ottawa and Swanton division), 9 miles from St. Louis, 5 miles from Coteau Junction (Soulanges county) and 30 miles southwest of Montreal. It is the seat of the Roman Catholic bishop of Valleyfield and has four churches (Roman Catholic, Episcopal, Presbyterian and Methodist) twenty stores, eight hotels, two banks (Hochelaga and La Banque Provinciale), one flour and three lumber mills, one large cotton and one large paper mill, a number of other factories and industrial establishments, besides water power and electric lights works, court house, jail, two printing and one newspaper office, ('Progrès'), weekly in French, several clubs, hospital, college, convent, academy, kindergarten school and mechanics' institute, together with telegraph and express offices. Population, 10,000.

From June 24 to September 13, dredge *Mohawk*, and from September 5 to November 21, dredge *Tomasco,* both the property of the General Construction Co., worked in Valleyfield bay opposite Pointe a la Roche, opposite Macpherson's Point

and in front of the 'Filgate' wharf. Total quantity dredged, 21,137 cubic yards, scow measurement, of boulders and clay in the making of an 8-foot channel. Average depth of cut made from 2½ to 6 feet. Contract price per yard, 21¾ cents.

VAUDREUIL.

From June 29 to July 15, 1910, departmental dredge *Nipissing* worked at Vaudreuil, deepening and widening basin adjoining public wharf. Some 8,460 cubic yards scow measurement, of clay were removed.

Departmental dredge *No. 3* also worked on same site from August 3 to 17, taking out altogether 1,997 cubic yards, scow measurement, making a total of 13,878 cubic yards for both dredges.

VAUDREUIL COVE.

Vaudreuil, a post village and parish in Vaudreuil county, on the Ottawa river, with port on the lake of Two Mountains, and on the Canadian Pacific railway and Grand Trunk railway, 24½ miles from Montreal. It contains a Roman Catholic church, six stores, four hotels two flour mills, &c., besides telephone, telegraph and express offices. Population of parish, 1,510.

Vaudreuil Cove, about 2 miles long, is situated about 2 miles northwest of Vaudreuil village, immediately south of Pointe Cavagnole.

The construction of different works near Vaudreuil, as the locks and dams of Ste. Anne de Bellevue, the Canadian Pacific railway and Grand Trunk Railway bridges and the highway bridge at Ste. Genevieve, has diminished the flowing section of River Ottawa and caused the high water to sojourn much longer at and around Vaudreuil bay, thereby causing extensive erosion of the banks; the shore roadway, at certain places, having had to be removed more than 100 feet from its position in 1880.

During the autumn of 1910, the Crown began some protection works along these banks. An agreement was entered into with the interested shore landowners, by which the latter sold to the government a quantity of stone proportionate to the length of bank to be protected, at $4 per toise, each landowner to rip-rap the stone in place, in front of his property, free of charge and under the inspectorship of a government official.

Work was begun at the end of November, 1910, and completed March 2nd following, with an expenditure of $4,222.99.

VERDUN.

Verdun, an incorporated village in Jacques Cartier county, lying to the southwest of the city of Montreal, and separated from it by the tail race of the Montreal waterworks, and one mile from St. Paul station, on the Grand Trunk railway. It contains four churches (Roman Catholic, Anglican, Presbyterian and Methodist), a number of stores, a large laundry, ice-house, one hotel, the Protestant hospital for the insane, one branch bank and a large seminary. A ferry runs to La Tortue on the south side of the St. Lawrence, and there is a good electric car service to Montreal. Population, 5,000.

The Verdun public wharf, built in 1899-90, consists of:—

1. A crib headblock, 82 feet long, 20 feet wide, with ice-breaker.
2. A crib approach, 75 by 18 feet.

During July and August, 1910, a sum of $713.81 was expended in raising the whole headblock and approach one foot, and in widening approach 15 feet for a length of 30 feet, with stone. Work was done by day labour.

Dredging.

From July 21 to October 15, 1910, Messrs. Laurin & Leitch's dredge, *No. 1,* worked in the St. Lawrence opposite Verdun, widening and deepening, to 8 feet, the basin adjoining public wharf. Extreme dimensions of dredging done, 300 by 200 feet, representing some 21,480 cubic yards, scow measurement, of boulders and clay. Contract price, 35 cents per yard.

PROVINCE OF ONTARIO.

ALLANDALE.

Allandale, Simcoe county, a ward of the town of Barrie, is situated on Kempenfeldt bay, an arm of Lake Simcoe, distant 66 miles northwest from Toronto, on the Grand Trunk railway.

On the 16th June last, authority was given to expend the sum of $15 in rounding the outer corners of the waling on the wharf by day labour.

However, the work had been performed by Capt. McInnis, of the steamer *Islay.*

There has been no expenditure.

ARNPRIOR.

Arnprior (population 4,500), county of South Renfrew, is located at the mouth of the Madawaska, on the south shore of Chats lake, which latter is an expansion of the Ottawa river, navigable for 20 miles.

During the period from April 1 to May 4, the remaining 30 per cent of the concrete work was completed, at a cost of $614.11.

During the period July 27 to August 18, some minor finishing work was performed at or near the low water line, and the launch basin to the rear of the dock was cleared of old pier debris, &c., the plant was shipped to Hull storage sheds and the balance of timber was transferred to the site of the proposed Norway Bay wharf. Expenditure during the twelve months, $879.04, from the appropriation 'Harbours, Ontario.'

Expenditure to March 31, $7,494.62.

This wharf extends out 126 feet at a height of 8½ feet above M.L.W. The landing face is 72 feet long, including icebreaker, and draws 9 feet. All pile work is braced under water. The approach is 12 feet wide, and the landing head is 36 feet wide. The latter is connected by a flight of steps to a low level landing 24 by 24 feet inside the 'L' at breakwater end for small boats. A reinforced concrete lamp post is provided. The approach has a two-line wrought iron pipe rail, and the landing face is fendered with hardwood. The whole structure, above M. L. W. is of reinforced concrete and adaptation of concrete cribwork, in place. Although the relatively heavy boats using the dock bruised the concrete backing of one of the fenders, the structure does not show any cracks from effects of impact or internal temperature strain.

BEWDLEY.

Bewdley, Northumberland county, is situated at the west end of Rice lake and is a village of some 50 inhabitants. A large portion of the surrounding country, which is rich in agriculture, is tributray to this place.

On May 27 last, authority was given to expend the sum of $200 for the completion of the wharf by day labour.

Work was commenced on the 10th and completed 21st July.

The work consisted in completing the stone filling in the approach to the wharf and gravelling same, also placing two iron mooring hooks.

In doing the above work, some 112 cubic yards gravel and 21¾ lbs. iron were used.

Total expenditure for fiscal year, 1910-11, is $295.88.

BLANCHE RIVER.

Of the $7,000 appropriated during the last session for further improvements on the main and south branches of Blanche river, work was performed only on the latter portion of the stream.

Owing to high water conditions during the past season on Lake Temiscamingue, partly from heavy rains and partly from backwater due to temporary works at the foot of the lake, further improvements on the main branch of the stream was out of the question. Besides, upon completion of regulating works, now under construction, the shoal portions of this river will not be an impediment to navigation as far as Tomstown, 26 miles above the mouth.

On the south branch (August 10-September 12) three miles of the stream was further improved immediately above Charlton, at a cost of $1,702.43.

The work consisted in removing from the Charlton wharf approach 268 stumps and snags, cutting and removing 1,427 logs from overhanging trees from the 3-mile stretch, and removing from the latter portion, 374 snags, clearing off 13 old piling grounds where debris of the above description had been spoiled during the previous seasons. The work was performed by an experienced foreman and some ten men, with special plant devised for similar work in the past.

This work placed in good shape, some 35 miles of navigable waters above Charlton, first improved a few years ago.

The plant was shipped to Flat Rapids, on the Montreal river, and to headquarters near Haileybury.

BLIND RIVER.

Blind River is a village situated on the north shore of Lake Huron, district of Algoma, and is a station on the Canadian Pacific railway. Extensive lumbering operations are carried on at this place. Population, 2,500.

On the 16th June last, authority was given to expend the sum of $400 in renewing the planking on the approach to the wharf by day labour.

Work was commenced 11th and completed 29th July.

The work consisted in the renewal of the planking on the approach for the entire width and a length of 190 feet.

In doing the above work, some 9,507 feet, B.M., hemlock, 3,525 feet, B.M., pine, and 400 lbs. iron were used.

Total expenditure for fiscal year, 1910-11, is $399.11.

BOWMANVILLE.

Bowmanville (or Port Darlington), Durham county, is situated on the north shore of Lake Ontario, 43 miles east of Toronto, by rail, on the main line of the Grand Trunk railway, between Toronto and Montreal. Population, 2,800.

On the 18th August last, authority was given to have certain dredging performed at this place by Mr. W. E. Phin, at the following prices per cubic yard, scow measurement:—Class 'A,' $2.75; 'B,' $1; and 'C,' 18 cents.

Work was commenced 22nd August and completed 13th September.

The work consisted in excavating one cut 1,600 feet in length by 25 feet in width, and one cut 1,100 feet in length by 25 feet in width to a depth of 16 feet below low water.

In doing the above work, some 26,314 cubic yards other materials were removed.

Total expenditure for fiscal year, 1910-11, is $4,799.87.

BROCKVILLE.

This pier, which forms the entrance to Tunnel bay, was originally a pile trestle flanked by very solid timber cribwork, all extending some 300 feet west from what was originally Soldiers Island.

It was built, prior to confederation, by the Canada Central Railway Company, and used by them as a timber, coal and freight shipping dock, and subsequently by their successor, the Canadian Pacific railway.

Of late years, it has been unused and allowed to fall in ruin.

A large part of this waterfront, to the south of Tunnel bay, was deeded by the Canadian Pacific railway to the corporation of the town of Brockville; the corporation in turn deeding it to the Crown, together with right-of-way from Market Square, a public thoroughfare.

It was decided to improve the western end of this property by placing a concrete retaining wall around it and resting upon the old cribwork, which was found to be in an excellent state of repair.

Between the walls was to be subsequently filled in to make a level pier throughout, when conditions would warrant.

The improved pier was designed for the use of small craft. Designs, estimates and specifications were prepared for this work and public tenders called for, early last fall.

The contract was let to Mr. S. Gowan for $6,500, and completed in a satisfactory manner before winter set in.

BROCKVILLE SHOAL.

A rock shoal extending out from the government dock adjacent and south of the Canadian Pacific railway dock proved a menace to the large steamers touching the latter. This shoal was drilled and blown, from the ice, during January and February, in such a manner as to insure its removal by dredge during the coming fiscal year.

BURLINGTON CHANNEL.

Burlington channel, Wentworth county, is simply a cut through a piece of low-lying land which separates Lake Ontario from a large sheet of water called Burlington bay, thereby enabling vessels to reach the wharf at the city of Hamilton. Over this cut, we have erected a swing bridge. The cut is 120 feet in width, and on the northerly side has a cribwork pier 2,326 feet in length, and on the southerly side a pier 2,722 feet in length, of which 2,210 feet is entirely of crib and pile work, and the remaining portion, 512 feet, has a substructure of crib and pile work and a concrete superstructure having a width varying from 23 to 40 feet at the outer end. The all-cribwork portion of this pier is 23 feet in width. The Department of Marine and Fisheries has erected a concrete lighthouse on the east or outer end of this south pier.

On the 21st April last, authority was given to expend the sum of $500 in repairs to the swing bridge.

The work consisted in repairing the upper chord by the substitution of a new section, as the old chord had parted a few feet from the centre of the bridge.

Work was carried on from the 21st to 30th April.

At the last session of parliament, the sum of $40,000 was appropriated for tho reconstruction of the south pier, and on the 30th April last authority was given to proceed with the work by day labour.

This work was commenced on the 9th May and carried on till the 12th November.

The work performed this season consisted in the construction of a concrete superstructure, 23 feet 10 inches wide and 909 feet long, with a parapet wall on the lake side some 208 feet in length, also the construction of a small boat landing, 50 feet in length, on the channel side, with an iron kiosk or shelter immediately in the rear thereof.

In doing the above work, some 3,891 barrels of cement, 38,476 lbs. iron, 2,276 cubic yards gravel, 2,496 cubic yards stone, 6,440 feet, B.M., pine, 8,497 feet, B.M., hemlock, and 8,160 feet, B.M., oak were used.

The swing bridge staff were employed from the 1st April to the 30th November, when the lights were put out and navigation closed for the season, re-opening again on the 15th March.

On the 29th June last, authority was given to expend the sum of $110.44 in the construction of a concrete walk on the government reserve to the south of the channel.

This work was performed during July, and consisted in the construction of a walk, 186 feet in length by 6 feet in width.

The total expenditure for fiscal year, 1910-11, is $42,704.98.

BYNG INLET.

Byng Inlet, Parry Sound district, is situated on the Magnetawan river, about 3 miles from Georgian bay, and is a village of some 1,500 inhabitants. Large lumber mills of Messrs. Holland and Graves are located at this place. They have an annual output of 56 million feet, B.M.

At the last session of Parliament, the sum of $30,000 was appropriated for dredging at this place, and on the 25th April last, authority was given to proceed with the work for which a contract was awarded to Messrs. Manley & Co., at the following prices per cubic yard, scow measure:—Class 'A,' $3.75, 'B,' $1.75; and 'C,' 9½ cents.

Work was commenced 14th June and closed for the season 30th November.

The work consisted in dredging in front of the Canadian Pacific railway coal wharf, now being built on the north side of the river, an irregular area was dredged, having an extreme length of about 1,500 feet and an extreme width of about 500 feet. Also an area in front of Holland & Graves' lumber wharfs, on the south side of the river, of irregular shape, having an extreme length of 600 feet and an extreme width of 300 feet. These areas together constitute the turning basin 750 feet wide in front of the coaling wharf. All dredged to a depth of 20 feet.

In doing the above work, some 208,998 cubic yards were removed.

Total expenditure for fiscal year, 1910-11, is $22,429.22.

CACHE BAY.

Cache Bay (population, 1,000), Nipissing district, a station of the Canadian Pacific railway, 23 miles west of North Bay, is on the north shore of Lake Nipissing, on an arm of the lake called McLeod's bay. It is a lumbering centre of some importance.

At its last session, Parliament voted $5,000 towards the construction of a pile-work wharf in McLeod's bay, for Cache Bay. As the controlling depth for 5 or 6 miles out from this site of the proposed wharf is limited to 3 or 4 feet, it was not thought advisable to proceed with this structure, until proposed regulation on Lake Nipissing would be within reach by the construction of a permanent dam in French river. The site has been further examined with a view of preparing contract plans.

No expenditures have been incurred against this appropriation.

CALLENDAR.

Callendar, Parry Sound district, is a town of some 1,000 inhabitants, situated on the east shore of Lake Nipissing, on the north branch of the Grand Trunk railway, 9 miles south of North Bay. Lumbering and general business are the chief industries.

On the 22nd March last, authority was given to expend the sum of $175 in repairs to the wharf by day labour.

The work was commenced 18th and completed 25th July.

The work consisted in levelling up three cribs and renewing the decking.

In doing the above work, some 215 feet, B.M., pine, and 1,286 feet, B.M., hemlock were used.

Total expenditure for fiscal year, 1910-11, is $135.17.

CHARLTON.

Charlton (population, 200), a village in Nipissing district, is located on the south branch of Blanche river, 30 miles above Tomstown, and at the foot of a chain of lakes on which navigation has been improved for a distance of some 38 miles.

During the past season, while the work of improving the lower three miles of the river was in progress, the wharf was repaired by placing a piece of capping and restoring damaged sheeting, at a cost of $4.

CHRISTIAN ISLAND.

Christian island is situated in the Georgian bay, county of Simcoe, and is distant from Penetanguishene, the nearest railway point, about 26 miles. The inhabitants are chiefly Indians, as this is an Indian reserve. Cordwood exportation and fishing are the chief industries.

At the last session of parliament, the sum of $3,000 was appropriated for wharf repairs at this place, and on the 6th June last, authority was given to proceed with the work by day labour.

Work was commenced 15th September and completed 9th December.

The work consisted in the reconstruction of the superstructure, viz.: redecking the headblock, 30 feet by 150 feet and reconstructing 100 feet of approach to one foot below water level by a width of 14 feet, also renewing the superstructure of a small counterfort on the west side of the approach, 27½ by 12 feet, also building an extension to the headblock in a westerly direction, comprising an entirely new crib, 20 by 30 by 14 feet in height.

In doing this work, some 14,896 feet, B.M., pine, 3,027 lbs. iron, 3,361 feet, B.M., cedar, and 8 cords of stone have been used.

Total expenditure for fiscal year, 1910-11, is $2,369.78.

CHUTE À BLONDEAU.

Chute à Blondeau, a post village on the Ottawa river, in Prescott county, 5 miles from Pointe Fortune and 7 miles from Hawkesbury, on the Grand Trunk railway. It contains two churches (Roman Catholic and Presbyterian), two stores, two hotels, grist and saw-mills and telegraph office. Population, 500.

The Chute à Blondeau wharf, built by contract during the summer of 1908, consists of:—

A two-level crib and concrete wharf, 100 feet long outside face, with 30 feet wing at downstream end, and a 40 foot ice-breaker, 19 feet wide at other end, lower half standing 16 feet high and the other 22 feet high, and sunk in 7 feet of water at lowest level.

In the middle of October, 1910, the construction of two sheds was begun: one 20 by 30, with 6-inch concrete flooring near wharf, and the other, 18 by 30 feet, on higher

land. A concrete flooring 60 feet long and 6 feet wide was made, connecting slip with lower storehouse. A cattle yard, 60 by 30 feet, was fenced into three divisions and the roadway improved. Work was suspended at the beginning of December, resumed at the end of February, and completed the 7th March last. Work was done by day labour with an expenditure of $831.86.

CLAIRMONT FERRY.

On the 1st of March, 1910, there occurred near Clairmont Ferry, about 8 miles below Casselman, a landslide of some 8 acres of land from the west bank, filling the bed of the South Nation river, for a distance of about one-quarter of a mile. A report, dated June 17, 1910, gives detailed information regarding this landslide. Four thousand dollars was authorized, July 5 last, to improve the river flow.

Work of reducing the obstruction was started on August 9, and was discontinued October 1. The improvement consisted in widening the channel from a mean width of 50 feet to that of 132 feet above elevation 150, and removing obstructing mounds, with wrecked trees, over a distance of some 1,500 lineal feet of stream. A culvert, 72 feet long, 16 inches wide and 24 inches high, was built of 3-inch planking to drain the damaged property.

The work, which is 50 per cent completed, will facilitate the passage of the ice and flood waters, which latter will improve the channel by scouring. The work is to be completed during the season 1911. The plant, which consists of scrapers, ploughs, shovels and picks, was stored near the works.

The approximate volume of clay is estimated at 25,000 cubic yards, moved with minimum haul, at a cost of 16 cents, for a total expenditure to date of $4,066.05. Work was discontinued October 1st last.

COBOURG.

Cobourg, Northumberland county, is a large town on the north shore of Lake Ontario, on the main line of the Grand Trunk railway, 66 miles east of Toronto. Population, 5,000. The large ferry, *Ontario No. 1,* plys between this port and Charlotte, N.Y., the year round, bringing to Canada immense quantities of coal for the Grand Trunk railway; she also carries a large number of passengers; Cobourg is also a port of call for the regular passenger boats plying between Toronto and Montreal.

On the 13th April last, authority was given to expend the sum of $1,800 in repairs to the east pier by day labour.

Work was commenced 25th April and completed 13th July.

The work consisted in driving a row of close-piling on the channel side of pier and anchoring same to concrete blocks with anchor rods and filling in at the rear with stone, after which the surface was covered with a coat of gravel. This put the approach to the wharf in good condition, but the same style of construction should be adopted throughout the entire length of the approach. The length of piling is 71 feet. A portion of the approach was covered with new decking some 300 feet in length by 16 feet in width.

In doing the above work, some 2,113 lineal feet of piles, 14 cords of stone, 3 loads of cedar brush, 2,747 lbs. iron, 17,990 feet, B.M., hemlock, 1,165 feet, B.M., pine, and 8 yards of concrete blocks were used.

On the 18th August, 1908, a contract was awarded to the Randolph Macdonald Co., for the sum of $139,000 to construct extensions to the breakwater.

Work was carried on from the 11th April to 30th November, when it was completed.

The work consisted in constructing an extension to the westerly or Langevin pier, 350 feet in length by 30 feet 8 inches in width, also an extension to the east

breakwater, 425 feet in length by 30 feet 8 inches in width, having cribwork substructure with concrete superstructure.

A concrete beacon was constructed by the Department of Marine and Fisheries on the outer end of the west breakwater, under the supervision of this department.

Authority was given on the 5th October last, to place 500 cubic yards of talus along the lake side of the breakwaters where necessary, and the R. Macdonald Co. performed the work and supplied the materials at $1.60 per cubic yard.

On the 12th August, 1909, authority was given to perform certain dredging necessitated by the change in the location of the east breakwater, the work thus entailed to be paid for at 15 cents per cubic yard.

The work was performed by the R. Macdonald Co., and amounted to 3,333 cubic yards.

On the 25th April last, authority was given to perform certain dredging, for which a contract was awarded to the Randolph Macdonald Co., on the 23rd May last, for the following prices per cubic yards, scow measure:—Class 'A,' $3; 'B,' $1.50; and 'C,' 11 cents.

Work was commenced 9th May and completed 16th August.

The work consisted in widening and deepening the approach to the inner harbour, and in doing same, some 51,660 cubic yards of other materials were removed.

Total expenditure for fiscal year, 1910-11, is $92,614.81.

COLBORNE.

Colborne, Northumberland county, is situated on the north shore of Lake Ontario, about 14 miles east of Cobourg. Population, 1,000.

On the 24th June last, authority was given to expend the sum of $400 in repairs to the wharf and removing the berm of stone alongside same; the work to be done by day labour.

The work consisted in the levelling up of the outer 50 feet of the wharf; filling two cribs from the water line to the underside of the decking, and renewing the decking and waling where injured during the storms of the previous winter, also removing all the loose stone on the northeasterly side of the wharf, which formed a berm about 100 feet in length by 40 feet in width.

In doing the above work, some 2,678 feet, B.M., pine, and 250 lbs. iron were used.

Total expenditure for fiscal year, 1910-11, is $389.28.

COLCHESTER.

Colchester is a village situated on the north shore of Lake Erie, in the county of Essex, about 4 miles south of Harrow, and about 14 miles from the Detroit river; it is also about 3 miles from Oxley, a favourite summer resort; Harrow is the nearest point with railway connection. Population about 200.

At the last session of parliament, the sum of $10,000 was appropriated for an extension to the wharf at this point. Plans and specifications were prepared for an extension 300 feet long and varying from 20 to 30 feet in width, and with a design of close-faced timber substructure, filled with stone ballast, with a superstructure of concrete side walls, and stone filling between.

A contract for the performance of the above work was awarded to Messrs. Michael, Patrick J. and Mathew J. O'Leary, of Ottawa, on the 29th of October, 1910, for the sum of $14,500.

The contractors are now securing material with a view to proceeding with the work at an early date.

COLLINGWOOD.

Collingwood, Simcoe county, is situated on the south shore of the Georgian bay, 94 miles by rail from Toronto. It is the terminus of the Northern and Hamilton and Northwestern railway. There is an extensive trade in shipbuilding, grain and lumber. It is the starting point for steamers for Owen Sound, Sault Ste. Marie, Parry Sound, &c. Population, 5,000.

At the last session of parliament, the sum of $75,000 was appropriated for additional shipping and landing facilities and the extension of the entrance channel and enlargement of the deep water manœuvering area.

This work was not proceeded with.

On the 6th of June last, authority was given to expend the sum of $15,000 in cleaning up the channel and turning basin.

Work was commenced 4th August and completed 11th November.

The work consisted in the sweeping and cleaning up of the entire channel and the greater portion of the inner harbour with the aid of a diver and derrick scow, and removing therefrom all the boulders and fragments of blasted rock, which had been left during previous dredging operations. The total length of work done in channel is 5,350 feet, with a width of 300 feet at the northerly or outer end, gradually diminishing to 220 feet at a point 1,000 feet from the Grand Trunk Railway freight sheds, where the width of the channel cleaned is 450 feet. The area swept in inner harbour is 411 feet in length along the face of the government wharf, having a minimum width of 220 feet and a maximum width of 300 feet.

In doing the above work, some 252 cubic yards of boulders, loose rock, &c., were removed by the derrick scow, and 3,610 cubic yards of other materials were removed by the dredge.

Total expenditure for fiscal year, 1910-11, is $8,635.52.

CUMBERLAND.

Cumberland village, Russell county, is located 16 miles below Ottawa, 2 miles south of Buckingham Junction, on the Canadian Pacific railway.

Minor repairs to the Cumberland wharf, on the Ottawa river, were effected during the period from August 9th to June 10th, at a cost of $23.83.

The expenditure was necessitated by the usual flood damages, at this point, on the Ottawa river, as well as for ordinary wear from traffic.

DETROIT RIVER (MALDEN FRONT).

The Detroit river enjoys the reputation of being by far the busiest river in the world. The tonnage carried on it during the season of 1910 amounted to 73,526,602 tons, and the estimated value, $771,294,055. The wash from the large and rapid steamers caused considerable erosion in past years to the shoreline, which is termed the Malden Front, south of Amherstburg, and $2,000 was voted at the last session of parliament for the construction of stone revetment work to protect said shoreline. On the 6th of June, 1910, authority was received to proceed with the work.

An arrangement was made with Mr. Curtis Mickle, of Amherstburg, whereby he undertook to supply and place the stone required wherever and as directed, for the price of $2 per cubic yard.

Operations were commenced on the 24th of August and continued until the 14th of September, 1910, when the grant was expended.

The work performed consisted of the placing of 980 cubic yards of stone along a frontage of 575 lineal feet, and the work performed has already proved to be of considerable protection to this shoreline.

The total expenditure during the fiscal year, 1910-11, was $2,000.

ELK LAKE.

In 1909, a syndicate of public spirited citizens built a public wharf at Elk Lake, on the Montreal river. During its last session, parliament appropriated $1,200 for the purpose of acquiring the said structure. Terms were arranged, and a basis of settlement was recommended and authorized by an order in council to pay $1,135.05 for the work.

It is intended to complete the structure by placing, before the spring freshet, some more stone ballast in the exposed cribs.

The water lot for this wharf has been vested in the Crown.

The structure acquired is of the following description: Open-face round-timber cribwork construction, in the form of an 'L,' extending 230 and 150 lineal feet in the direction of Pine and First streets, respectively, and inclosing, with Water street, the space to be filled gradually. The wharf is 15 feet wide, covered with flatted spars, and stands at elevations of 1·6 to 7·5 feet above the water level, drawing 7 to 9 feet along the principal landing face. The shed, 15 by 33 feet, with corrugated siding and a platform, 30 by 26 feet, occupy the inner corner of the 'L.'

FLAT RAPIDS.

At its last session, parliament appropriated $1,800 towards the removal of boulders at Flat rapids, for the improvement of navigation of the Montreal river, above Latchford, Ont.

The cost of the work at this point (September 17 to October 31) was $1,716.31, which represents the removal of some 500 cubic yards of boulders and clay, or say 50 per cent of the whole job. The method adopted was to haul to shore all projecting boulders from the channel to be improved, by means of chain-sacks and stumping machine on shore. Six hundred and twenty-eight large boulders were so removed during the period from September 26 to October 17, and, besides, 25 imbedded boulders were drilled and blasted. The clay was removed by blasting. A channel to grade, 165 lineal feet and 20 feet wide, was obtained. To permit work in the rapids, where there is a head of 2·55 feet in a short distance, a temporary brush dam was built with materials obtained nearby. Above the rapids, a rock shoal, measuring 25 feet across, was reduced to 2 feet 8 inches, affording a depth of 7½ feet after the improvement. The channel was examined by test borings for balance of work to be effected during the coming season. As the improvement, when completed, will necessarily reduce the head at this point, it will be necessary to improve two shoals between Flat rapids and Mountain chute; said shoals consist of boulders, and measure, respectively, 116 and 84 feet across. During the past season, 500 pounds of 'cheddite,' new explosive, were used with satisfactory results.

FORT WILLIAM.

Fort William, a city of 22,000 inhabitants, is situated at the west end of Lake Superior and at the mouth of the Kaministiquia river, in the district of Thunder Bay, province of Ontario.

It is the principal lake port on the north shore of Lake Superior and the termini of two Transcontinental railroads.

Through this port, the terminus of lake navigation, the bulk of the grain in the Canadian west passes on its way to the markets of the east.

56,756,440 bushels of wheat, 16,344,401 bushels of oats, 1,600,331 bushels of barley, 3,090,718 bushels of flax, 1,586 bushels of rye, and 587,559 bushels of screenings were shipped by vessels between April 1st and the close of navigation, while large shipments were made during the winter by the all-rail route to eastern points.

Heavy shipments of package freight, merchandise and coal are received during the season of naviagtion and despatched westward.

Dredging was resumed in this harbour for the season 1910-11, on April 14, when dredge, *No. 5,* commenced work.

Dredge *No. 15* started work April 28.
" *Dominion* started work May 2.
" *No. 6* started work May 16.
" *Frank* started work June 7.
" *No. 1* started work June 15.
" *Shuniah* started work July 16.

These dredges have been almost continuously at work during the season, and have been almost totally employed in connection with the terminal basin and slip No. 1 for the Grand Trunk Pacific Railway Company. Very little work has been done outside this terminal basin, except that which was absolutely necessary to afford easy navigation in connection with this harbour.

Dredging was stopped by orders from Ottawa, August 24; on August 31, a ten days' extension was authorized, and on September 17, a second ten days' extension was granted. Authority was granted on September 24 to continue work until end of September. On September 30, permission was granted to continue work until October 10, and on October 12, it was extended to October 30. On October 28, orders were received to continue the work to third week in November. On November 25, orders were received to continue to end of season. Dredging stopped for season on December 5, when dredge *No. 15,* the last dredge working, was laid up for the winter.

The sections dredged over are as follows:—

KAMINISTIQUIA RIVER.

Elevator 'B.'—One cut was made along this elevator, removing a shoal area close to dock, the cut being 100 feet in length by 30 feet in width.

Subway dock.—One cut was made along face of this dock, removing a shoal area; said cut being 200 feet in length by 30 feet in width.

Imperial Oil Company dock.—One cut was made along face of this dock, removing shoal area; said cut being 200 feet in length by 30 feet in width.

McKellar river turning basin.—Shoal area opposite to Canadian Pacific Railway shed, No. 5, were removed, and three cuts were made in this section.

Elevator 'D.'—One cut was made in front of this elevator, removing shoal spot.

Ogilvie's elevator.—One cut was made in front of this dock being 30 feet in width and 500 feet in length.

Mission Entrance Channel.—Work was carried on in this section, widening entrance channel and dredging to crib-seat locations, a section 918 feet in length and 425 feet in width was dredged over.

Seaman Kent dock.—This being a new widening, a large amount of dredging was necessary to reach the dock site. The excavation covered an area of 900 feet in length by 100 feet in width.

Valley Camp Coal Company dock.—Two cuts were made along this dock removing shoal areas, said cuts being 400 feet in length by 60 feet in width.

Mission River proper.—The section of the river on the Grand Trunk Pacific side was straightened from Kaministiquia river to Seaman Kent Company's dock covering a length of 3,100 feet and a width of 30 feet.

Mission Basin.—Back filling was carried on behind cribs from crib 30 to 24 to water level.

Grand Trunk Pacific basin.—The whole basin and slip No. 1 were widened and deepened, covering an area for basin of 2,100 feet in length by a width of 1,800 feet, and slip No. 1 was completed being to grade for full size.

The amount of material removed by the various dredges is as follows:

	Cubic yards.
Dominion	893,278
Frank	326,039
Shuniah	287,379
No. 15	190,362
No. 6	544,698
No. 5	775,555
No. 1	53,244
Total	3,070,535

A total of :3,070,535 cubic yards, of which, 47,683 cubic yards were rock, were removed from the areas mentioned above from April 14 to December 5, made up as follows:—

Kaministiquia river

	Cubic yards.
Elevator 'B'	225
Subway dock	1,780
Imperial Oil Company	1,587
McKellar river turning basin	11,869
Elevator 'D'	621
Ogilvies elevator	493

Mission river—

Mission entrance channel	261,877
Seaman Kent dock	317,492
Valley Camp Coal Co.	2,842
Mission river proper	77,147
G. T. P. basin and slip	2,365,516
Backfilling	29,086
Total	3,070,535

Backfilling behind cribs already sunk was carried on from November 19 and the section from Grand Trunk Pacific dock to west bank was filled in to surface of water, 29,086 cubic yards were handled.

SUMMARY OF COST.

To paid contractors	$585,762 65
" inspection	4,556 00
" Justice of Peace	166 00
Total	$590,484 65

TIMBER.

Regarding timber being supplied by Messrs. Mason, Gordon & Co., under contract 7306, this contract was completed and final estimate given on July 13. The total amount paid to them for this fiscal year was $37,178.70. This is a net payment after deducting 10 per cent of drawback and gives a grand total to date for this contract of $120,333.99 gross.

SMITH AND HENEY CONTRACT.

Work was continued on the Smith & Heney contract, and up to date, a total of thirty-five cribs were constructed, of which only thirteen have been sunk in position. Operations on the sinking of cribs ceased on night of November 17 and stone filling of cribs was finished December 1, completing all work that will be done during the season of 1910. The following cribs were sunk in position, 30, 29, 28, 27, 26, 25, 24, 23, 22, 21, 31, 32, 33.

Work was carried on from June 24 to October 27 constructiong concrete blocks, and during this period 191 blocks were made, of the 900 required for this section of the contract. No concrete has as yet been placed in position.

SUMMARY OF COST.

To paid contractors	$112,414 17
" inspectors	1,678 65
Total	$114,092 82

Work was carried on by staff, marking with iron posts, turning points on all parcels of land expropriated for river widening; as well as this, contour lines were carried along portions of the various rivers and general information therewith obtained.

During the winter, a complete survey of the harbour was made and some 13,000 soundings were taken and plotted on plans.

Total expenditure for fiscal year 1910-11, is $884,725.76.

GODERICH.

Goderich is the county town of the county of Huron, situated on the easterly shore of Lake Huron, at the mouth of the Maitland river, about 68 miles from Sarnia, and 63 miles from London.

It is the termini of the Buffalo and Goderich branch of the Grand Trunk railway and of the Guelph and Goderich branch of the Canadian Pacific railway. The West Shore Electric railway also runs into the town. Population about 6,000. It is a favourite summer resort; it possesses many industries and is a progressive and thriving town; located on the harbour front is one of the largest flour mills in Canada, capacity being 1,200 barrels per day. There are two reinforced concrete elevators here, one with a capacity of 1,000,000 bushels and the other with a capacity of 600,000 bushels, the former being the property of the Goderich Elevator and Transit company, and the latter being a storage elevator of the Western Canada Flour Mills Co., Limited.

Goderich is a port of entry, and during the past season, three lines of passenger and freight steamers called regularly. The grain traffic is increasing rapidly and during the past season (which was a somewhat slack one for grain) owing to the limited demand for grain in the British market, during the fall, over six million bushels of grain was brought into this port from the west. A large amount of coal, ties, steel rails, timber and fish were handled over the docks; some 149 vessels having entered

the port with registered tonnage of 125,921 tons. When additional protection is given to the entrance from the south-east, and which work is now under construction, the Canadian Pacific Railway Company have signified their intention of establishing a regular line of boats from the upper lake ports to this place. The maximum draught of vessels which enter this port is about 19 feet when low water level obtains .

At the last session of parliament, the sum of $80,000 was voted for harbour improvements.

On April 23, 1910, authority was received to proceed with dredging on a two-year contract which has been awarded to Mr. W. L. Horton of Goderich at the prices of $2.75, 75 cents and 25 cents per cubic yard, scow measurement, for material classified as class 'A,' 'B,' and 'C,' respectively.

Subsequently, instructions were received to expend the grant of $80,000 in the following manner:—

Dredging	$ 38,000 00
Construction of breakwater	40,000 00
General repairs to piers	2,000 00
Total	$ 80,000 00

Dredging was commenced on April 25, and continued until November 24, 1910, when plant was laid up for the winter; during which time, dredging was carried on in inner harbour, in channel at entrance to piers and in the channel at outer entrance to piers, leaving a minimum depth of 20 feet below zero of gauge. The amount of material removed is as follows:

64,139	cubic	yards,	scow	measurement,	sand,	clay	and gravel.
7,502	do		do		rock.		

With only one dredge working, and the amount of appropriation available, it was found impossible to widen the outer entrance channel to the extent required to permit of resuming the old range into this harbour, and it is quite evident that, if this outer entrance channel is to be widened to the north next season, and in addition, the urgent enlargement of the deep area in inner harbour, carried out, it will be necessary to employ two dredges. Further, the experiences of the past few years have proved beyond doubt that continual filling in to this entrance channel will occur from the northerly side until such times as the existing breakwater is extended in to meet the river breakwater.

Piers.

Repair work was commenced on the 2nd of June and was carried on until the 28th November, 1910, when work was suspended; it was again resumed on the 7th of February and was completed by the end of the fiscal year.

Eight concrete block deadmen were placed as anchors for sheet piling, located at inner end and on north side of north pier; material was filled in rear of this 60 feet of sheet piling, and the bolting and sawing off of said piling completed. In addition, 16 iron tie rods were placed from sheeting to concrete deadmen; 90 lineal feet of timber was placed on the outstanding cribs on north side of north pier; sheeting at outer end of both north and south piers was repaired and partially renewed, and iron bands placed on same. A ladder was erected at the outer end of, and considerable decking renewed, on south pier, together with mooring posts. Other minor repairs were performed. The piers are now in very fair condition.

In the performance of the above work, some 4,575 feet, B.M., of timber, 3,577 lbs. of iron, 59 brls. of cement, and 4½ cords of stone were used.

Breakwater.

On the 29th of October, 1910, a contract was awarded to Mr. Michael Connolly, of Montreal, for the construction of 600 feet of breakwater to the southeast of entrance to harbour, and to be built of reinforced concrete substructure filled with stone and gravel, and mass concrete superstructure. Contract price is $140,417. On the 28th of March, 1911, an Order in Council was passed authorizing transfer of this contract to Mr. Wm. Bermingham, of Chatham, Ontario. Work is now in progress.

The total expenditure on these works during the fiscal year, 1910-11, was $47,-164.41.

GRAND BEND.

Grand Bend is a village situated on the easterly shore of Lake Huron, at the mouth of the Sauble river, about 13 miles from Parkhill, the latter place being the nearest railway station. It is also 15 miles from Exeter, and about 30 miles south of Goderich. It is a favourite summer resort. Population about 300. Surrounding district is rich agriculturally, and a large number of horses and cattle are raised.

At the last session of parliament, the sum of $2,150 was voted for repairs and renewals to the pier, and on the 6th of June, 1910, authority was received to expend $1,150 of the grant by day labour.

Work was commenced on the 2nd of July and was carried on intermittingly until the 29th of March, and consisted in the rebuilding of 20 feet of the inner end of approach to pier, the new work being of tamarack piles driven to refusal, tied with ½-inch iron tie rods, with stone filling between; 4-inch tamarack sheet piling, 20 feet long, was driven across outer end of pier, and for a return of 7 feet along southerly side, in order to prevent further scour. Southwest outer corner of pier was then levelled up, and 47 cords of stone filling renewed in structure. Iron bands were placed on two outer corners of the piers, and other minor repairs were made.

In addition, the channel at outer entrance to river was opened up seven times during the season in order to permit of ingress and egress for light draught boats.

In the execution of the above works some 200 feet, B.M., of pine, 29 lineal feet of piling, and 677 lbs. of iron were used.

The frequent blocking at the entrance to this river, by bar, formed principally by seas from the southwest, proves that such action will continue to occur until protection is afforded to the south side of the entrance.

During the fiscal year, 1910-11, the total expenditure was $744.77.

GRASSY RIVER.

An examination was made at the mouth of Little Grassy river, Rainy River district, Ontario, for the purpose of ascertaining the amount of dredging to be done, to get a channel through the bar, at the mouth of the river.

The examination showed that it would be necessary to dredge a channel, approximately, 2,300 feet long, and remove about 8,000 cubic yards to get 7 feet of water, in order to enable boats of light draught to enter the river. There are apparently no difficulties in the way.

GRAVENHURST.

Gravenhurst, Muskoka district, is situated at the south end of Lake Muskoka, is the terminal for the boats of the Muskoka Lakes Navigation Co., and is the chief centre of tourist traffic in the district. Important industries are located at this place such as tanneries and lumber mills.

Contract plans and specifications for the construction of a wharf were duly prepared and forwarded to Ottawa and tenders called and the work awarded to Mr. D. G. Stewart, of Ottawa, for the sum of $19,984.

Work was commenced March 20 and is still in progress.

The work is to consist of a landing pier of cribs and spaces with a concrete deck and a stone approach.

Total expenditure for fiscal year, 1910-11, is $684.18.

HAILEYBURY.

Haileybury, Nipissing district, on the west shore of Lake Temiskaming, is the chief lake port on the route of the Toronto and North Ontario railway, 108 miles from North Bay and 5 miles from Cobalt, the heart of an important mineral district.

The approach to the Haileybury dock being in bad shape from washing away of some of the filling and especially from holes worn by the continuous traffic, was improved June 3 to 15, by the addition of 200 cubic yards of gravel on the roadway, at a cost of $249.50. The amount expended included also repairs to some 64 feet of three-line W.I. pipe railing, damaged by a runaway team.

The proposed extension to the structure is being done by day labour. During the periods, July 13 to August 3, and October 1 to 26, all required pilework was placed for the purpose of widening the outer 200 feet of the approach from 16 to 40 feet on the south side. Instructions were received on December 4, authorizing work on the extension of the landing head by day labour. Work was resumed on January 3, and the improvement, which was well advanced by the end of March, will be completed during the coming season.

Status of work March 31, is as follows: Extension 200 by 64 feet, forming south stem, completed; all piling for north stem 48 feet by 64 feet, and widening of the approach, 24 by 200 feet, capped and braced.

The structure when completed is to consist of an approach 525 feet long, the inner section 325 feet in length having a roadway 16 feet wide and a foot walk dockage, 8 feet wide, for small craft; the outer section 200 lineal feet, having a roadway 16 feet wide and dockage 24 feet wide, for large boats; the landing head, forming with the approach, a 'T' of unequal legs and being 64 by 288 feet in deep water, and standing 15½ feet above datum, or 4 feet over R.W.S. It is proposed to reinforce with concrete the exposed dry masonry icebreaker approach, 525 feet long, on a height of about 16 feet, as the drainage of Lake Temiskaming in the winter, means ice shoves at possibly lower elevations than before. Raise of water eliminates dredging.

Expenditure to March 31, is $17,461.92.

HAMILTON.

Hamilton, Wentworth county, is situated on the southwest shore of Burlington Bay, at the westerly extremity of Lake Ontario. It has extensive manufactures, and is distant 39 miles from Toronto. Population 70,000.

At the last session of parliament the sum of $20,000 was appropriated for the extension of the revetment wall.

Contract plans and specifications, for the above have been prepared and forwarded to Ottawa and tenders called and the work awarded to Mr. Joseph Battle, of Thorold, for the sum of $60,844.

The proposed work consists of the construction of a wharf 50 by 252 feet having cribwork substructures and concrete superstructure, also a retaining wall 179 feet 10 inches and another portion of same 70 feet in length.

This work has not been commenced.

The departmental dredge *Quebec* was employed dredging a slip in front of the proposed wharf of the Oliver Plough Works, which are located directly opposite the works of the International Harvester Company, from September 12 to November 9.

Nine cuts were excavated having an average width of 30 feet each and extend from the channel dredged to the International Harvester Company, to the west end of the proposed wharf to be built by the Oliver Plough Works in front of their works a distance of approximately 600 feet.

During this time, the dredge removed some 139,600 cubic yards, of which 50,000 were overcast.

The *Quebec* being ordered to Port Burwell, the departmental dredge *Sir Richard* was sent from Port Credit to complete the work at the Oliver Plough Works, and remained there from November 23 to 28, removing 2,500 cubic yards.

The *Sir Richard* also worked from November 28 to December 3, for the Inland Navigation Company and removed some 3,000 cubic yards of clay and made a cut on one side 200 by 30 feet and two cuts on the opposite side 235 by 35 feet.

She also worked on December 5 for the Mutual Steamship Company, removing 700 cubic yards of clay making a cut 135 by 30 feet.

Also one day (December 6) for the Hamilton Steamboat Company, removing 400 cubic yards of clay and making a cut 80 by 20 feet.

Total expenditure for fiscal year, 1910-11, is $4,092.47.

HARDWOOD.

Harwood, Northumberland county, is situated on Rice lake, 30 miles south of Peterborough and lies in a good agricultural district. Population 50.

At the last session of parliament the sum of $2,100 was appropriated for the extension of and repairs to the wharf and on June 6 last, authority was given to proceed with the work by day labour.

Work was commenced September 1 and completed November 21.

The work consisted in the construction of an extension of cribwork 120 feet in length by 18 feet in width, also relaying new decking on the old wharf and grading in rear of the extension.

In doing the above work, some 21,349 feet, B.M., pine; 1,047 feet, B.M., oak; 1,041 feet oak piles; 636 lbs. iron, and 50 loads of gravel were used.

Total expenditure for fiscal year, 1910-11, is $2,144.35.

HAWKESTONE.

Hawkestone, Simcoe county, is situated on the north shore of Lake Simcoe, 14 miles east of Barrie, and is on the Grand Trunk railway from Toronto to North Bay.

On June 29 last, the sum of $20 was authorized for repairs to the wharf to be done by day labour.

Work was commenced on 13th and completed July 16.

The work consisted in the renewal of the decking on the outer portion of the wharf, also re-gravelling portion of the approach connecting the timber portion of the wharf with the shore.

In doing the above work, some 86 feet, B.M., cedar and 17 lbs. iron were used.

Total expenditure for fiscal year, 1910-11, is $19.11.

HILTON.

Hilton, district of Algoma, is a small village situated on St. Joseph's island in the north channel of the Georgian bay.

On May 13 last, authority was given to expend the sum of $350 for the completion of repairs to the wharf, the work to be performed by day labour.

Work was commenced May 25 and completed June 28.

The work consisted in repairing the concrete facing of wharf previously built, also constructing a concrete superstructure 36 by 6 by 5 feet 6 inches deep and filling a portion in rear of the concrete wall some 12 to 8 feet deep by 12 feet wide and about 75 feet long.

In doing the above work some 36½ barrels of cement, 225 feet, B.M., maple, 1,000 feet, B.M., hemlock plank, 147 lbs. iron and 108 loads of gravel and stone were used.

Total expenditure for fiscal year, 1910-11 is $354.93.

HOLLAND RIVER.

Holland river is situated in the township of West Gwillimbury, and forms the boundary between the counties of York and Simcoe, 41 miles north of Toronto. This river empties into Cook's bay an arm of Lake Simcoe.

On August 13 last, authority was given to expend the sum of $20 in repairs to the roadway approach to the wharf on this river at Bradford. The work to be done by day labour.

Work was commenced 1st and carried on till the 3rd November and then from the 14th to 17th and completed on the 28th.

The work consisted in filling in a number of holes in the roadway approach and making slight repairs to the decking.

In doing the above work, some 16 loads of gravel and 43 feet, B.M., pine were used.

Total expenditure for fiscal year, 1910-11, is $52.10.

HUNTSVILLE.

Huntsville, Parry Sound district, is situated on the northern division of the Grand Trunk railway, 145 miles north of Toronto. Population, 2,100.

At the last session of parliament the sum of $2,000 was appropriated for the construction of a pile extension to the government wharf and on April 22 last, authority was given to proceed with the work by day labour.

Work was commenced July 4 and completed November 10.

The work consisted in extending the existing wharf 150 feet. A portion of the new work was lowered 15 inches to afford a more convenient landing for the smaller boats.

In doing this work some 1,197 lbs. iron; 12,235 feet, B.M., tamarack, 18,041 feet, B.M., pine, 342 feet, B.M., hemlock, 180 lineal feet cedar piling and 1,127 feet, B.M., tamarack were used.

Slight immediate repairs were made to the decking of the old wharf, 332 feet, B.M., hemlock, 400 feet, B.M., pine and 20 lbs. iron were used.

On October 21 last authority was given to expend the sum of $600 in renewing the decking on the old wharf by day labour.

This work was not performed owing to the difficulty in securing the materials.

Total expenditure for fiscal year, 1910-11, is $1,804.47.

JUNIPER ISLAND.

Juniper island, Peterborough county, is situated in Stoney lake. The post office and general store are located thereon, and it is the centre for the distribution of supplies for tourists and cottagers using Stoney lake us a summer resort.

At the last session of parliament, the sum of $3,400 was appropriated for the construction of a wharf and on June 6 last, authority was given to proceed with the work by day labour.

The work of construction was transferred to the Department of Railways and Canals on July 11 last.

Total expenditure for fiscal year, 1910-11, is $11.30.

KINCARDINE.

Kincardine is a prosperous town situated on the east shore of Lake Huron, in the county of Bruce, 39 miles south of Southampton and 32 miles north of Goderich. It is the terminus of the Wellington, Grey and Bruce division of the Grand Trunk railway. Population about 3,000. Principal industries of the town are: two furniture factories, salt works and boiler and machine works. It is surrounded by a prosperous farming country. Considerable stock is raised and a large amount of cheese and butter is marketed. It is the principal summer resort on the east shore of Lake Huron. It is a harbour of refuge for vessels not drawing over 14 feet, and possesses facilities for both imports and exports, either by water or rail; principal imports are coal, wood, lumber, fence posts, ties and fish; principal exports are, salt, furniture, iron bridges, boilers, &c. It is port of entry and a regular port of call for a line of package freight steamers running between Lake Huron ports and Sault Ste. Marie. Two steam tugs and one launch are engaged in fishing at this point while the revenue collected on the material delivered over the docks during the season of 1910 amounted to $772.73.

At the last session of parliament, the sum of $1,000 was voted for repairs to piers, and on June 6, 1910, authority was received to expend the grant by day labour.

Piers.

Repairs to piers were commenced on September 12, 1910, and were continued until October 26 following, when work was suspended owing to adverse weather conditions. It was again resumed on the 11th and completed on March 31, 1911. Work performed consisted in the repairing of 150 feet of west dock of inner basin and 100 feet of east dock of inner basin; some 9 M. feet, B.M., of decking being placed, including a large portion of stringers for same. One hundred feet of 8 by 10-inch elm waling was also renewed on face of this pier. Sheeting with iron straps were renewed at outer end of south pier. General repairs were made to east dock in inner basin, and seven new mooring posts placed; minor repairs made to the waling on northerly pier.

In the execution of the above work, some 20,745 feet, B.M., of tamarack, rock elm, oak, cedar and pine timber and 800 lbs. of iron were used.

While these temporary repairs permitted the using of the docks for the present, the general condition of the works on the easterly side of the harbour, particularly, is such that it will be necessary to renew them in the early future, and which will necessitate not only the renewal of superstructure, but, for the greater portion of the work, the renewal of the substructure also.

Dredging.

On the 26th of April, 1910, authority was received to remove 19,000 cubic yards of material, a contract having been awarded to the Dredging and Drainage Company of Ontario, Limited, of Toronto, at the rate of 22 cents per cubic yard, scow measurement, and which amount was, on the 28th of May following, increased to 33,276 cubic yards.

Operations were commenced on the 14th of May and were completed on the 2nd of August, 1910, during which time 32,356 cubic yards, scow measurement, of sand, silt and gravel were removed. A depth ranging from 16 feet below L.W.L., at entrance to harbour, to 10 feet below L.W.L. in inner harbour, was thus provided. While this dredging permitted continuance of navigation to the docks, a considerable amount of dredging requires to be done in inner harbour in order to provide proper turning room for vessels both entering and leaving this inner harbour, and which work it is anticipated will be performed during the coming season.

Total expenditure during the fiscal year 1910-11 was $8,317.92.

KINGSVILLE.

Kingsville is a thriving town, situated on the north shore of Lake Erie, in the county of Essex, about 25 miles east of the mouth of the Detroit river, and on the line of the Pere Marquette railway. An electric railway line also runs through, between Windsor and Leamington. Population about 1,800. It is the centre of a very rich farming country, and important harbour of refuge, also the principal point from which steamers carrying freight and passengers run regularly to Pelee island, Sandusky and Windsor; a large fishing trade is carried on at this point; the main traffic over the dock is lumber, fence posts, farm produce, including live stock, and general building materials. The traffic over docks is steadily increasing; maximum draught which vessels can draw at present entering this harbour is 10 feet, and the necessity of increasing this depth has become very apparent, and a 16-foot depth is to be provided during the coming season.

At the last session of parliament, the sum of $4,000 was voted for the renewal of decking on easterly pier, and on June 6, 1910, authority was received to expend the grant by day labour.

Work was commenced on July 1 and continued until October 15, 1910, when operations were temporarily suspended; during the winter season piles were secured for future renewals required.

Work consisted of the repairing of the outer half of decking of outer block; from outer half of outer block to warehouse, 5½ courses of new oak stringers were supplied and the best of the spruce planking taken off, the whole decking was relaid; from outer end of warehouse to inner end of pier, about fifty per cent of the stringers were renewed in white oak, and the whole flooring renewed in 3-inch white oak. One hundred and thirty-nine feet of 3-inch white oak sheeting, 14 feet long, was driven to refusal on easterly side of pier and spiked securely to same. One hundred and sixty-five and one-half lineal feet of 6 feet by 8-inch white oak waling was renewed on west side and also 26 lineal feet of 8 feet by 10-inch white oak capping; other minor repairs were made to this pier, and one white oak snubbing post was renewed. Some 25 feet of outer end of westerly pier was laid with second-hand spruce plank taken from the deck of easterly pier, while the walk along centre of westerly pier was repaired.

In addition to the above, the warehouse was painted with one coat of white lead, and minor repairs made to the building.

In the performance of the above work, some 64,698 feet, B.M., of white oak and 168 feet, B.M., hemlock timber; 3,306 lineal feet of white oak piles and 4,395 lbs. of iron were used.

The completion of this work left the decking of the piers in very fair condition. During the past year, however, it was discovered that owing to the fact that the east landing pier, which was originally built on pile foundation, was intended only to provide for maximum depth of 10 feet of water and, in consequence, scour had occurred to such an extent along the harbour side of the structure that the foundation, on which it now rests, requires immediate attention. Further, to provide the additional depth of water required, makes it imperative to carry a foundation for this pier to much greater depth than the existing piles were driven.

Total expenditure during fiscal year, 1910-11, was $3,975.03.

LAKE NIPISSING.

This dam is for the purpose of so controlling the discharge of the Lake Nipissing watershed that the water level of the lake, during the fall or low months, may be maintained at about elevation 643·5, or about half way between mean summer level and high water.

This will serve the purpose of facilitating the handling of logs at the different mills on the lake shore, also provide a constant depth at the different wharfs and harbours where the department has made improvements by dredging.

The dam will form an integral part of the future Georgian Bay Ship Canal system, and will block the larger of the two outlets known as the Little Chaudière rapids.

The dam will be of the stop-log type between concrete piers and shore abutments. The openings will be 17 feet in width and with a depth from 8 to 20 feet.

An operating bridge will run over all, with track carrying a hand-driven, stop-log operating machine for handling the stop-logs.

When full open, the discharge area will be about 20 per cent greater than the present minimum section, and the latter will be considerably enlarged, thus guarding against exceptional precipitation over the water-shed and consequent damage flood-level of the lake.

Contract plans and specifications were prepared in September, but tenders were not called until too late in the fall to start the work before winter.

The contract, itemized for each classification, was secured by Mr. J. F. Boyd, of the 'Soo,' Ont., the amount approximating $13,400.

All materials were delivered at Callander and Sturgeon Falls, during the winter, ready for shipment to the site when the ice would go out of the lake.

Very complete hydraulic data of the lake has been obtained, extending over five years, so that an accurate system of operation may be prepared to assure the desired control.

LAKEPORT.

Lakeport, Northumberland county, is the port of Colborne, and is situated in the west riding of the county, 14 miles east of Cobourg, on the north shore of Lake Ontario.

At the last session of parliament the sum of $6,000 was appropriated for the reconstruction of the wharf, and contract plans and specification for same were duly prepared and forwarded to Ottawa and tenders called and work awarded to Mr. S. Gowan, of Brockville, on November 7 last for the sum of $16,430.

Work was commenced in December last.

The work consists in the reconstruction of the stone approach, 145 feet in length by 16 feet wide on top, also the reconstruction of the inner end of the landing pier, composed of 9 cribs and 8 spaces; 8 cribs being 30 by 16 feet and one crib being 75 by 16 feet adjoining the headblock. The entire construction is cribwork with plank decking and is 592 feet in length.

Up to date, part of the stone approach has been built.

Total expenditure for fiscal year, 1910-11, is $1,120.90.

LAKE TIMISKAMING GENERALLY.

During the past season, several works were carried out on Lake Timiskaming with departmental plant, which has reached the stage of a fully-equipped contractor's plant. In connection with the maintenance and improvement of this plant, several items of expenditure, which could not well be charged to small appropriations for works in course, were taxed to the general appropriations for 'Harbours, Ontario,' and 'Harbours, Quebec.'

Departmental plant is now stored, overhauled, &c., on a rented property, some two miles north of Haileybury. During last summer, the shipyard ways were lengthened; a new carriage was made for said ways. The plant was overhauled in the spring and hauled out in the fall. The gasoline launch was maintained through the season. Salaries of general foreman and field clerk were paid, and the supply of tim-

ber was replenished by taking advantage of a cheap lot offered for immediate purchase, authorized in the spring.

The expenditure was apportioned as follows:—

Harbours, Quebec	$1,062 30
Harbours, Ontario	3,027 80
Total	$4,090 10

The gasoline launch was in commission May 4 to October 21, and covered during the 151 working days an average of 25 miles per day, attending to the different works carried on during the past season. The expenditure for gasoline, batteries and oil totalled $174.25, and repairs (the first since the motor was bought in 1908) cost $24.05; total $198.30.

LATCHFORD.

Latchford, district of Nipissing, is a town on the T. & N. O. Ry., located on the Montreal river.

At its last session parliament appropriated $25,000 towards the construction of a dam at this place for the purpose of improving navigation to Elk lake. A contract was entered into with Messrs. Sinclair and Campbell for a structure, at unit prices, which will aggregate approximately $40,000. Work was started in April. but did not progress rapidly owing to uncontrollable circumstances. The status of work showed following stages of completion:—

Total excavation	73%
Concrete in place	42%
Steel in place	8%

Expenditure to March 31 is $25,048.86.

LEAMINGTON.

Leamington is a prosperous town, situated on the north shore of Lake Erie, in the county of Essex, about 37 miles from the city of Windsor, on the lines of the Père Marquette and Michigan Central railways. Population, about 2,500. It is the centre of a rich fruit-raising district. A number of oil wells are being worked in the vicinity of Leamington. It is a port of entry and a port-of-call for a steamboat line running between Windsor and Pelée island. Deep draught tugs also carry considerable freight from this point to Pelée island and other adjoining places. Maximum draught of vessels using piers at this point is about 11 feet. The principal manufactories are: basket factory, planing mill, pickle factory, tobacco factory, cement works and canning factory.

At the last session of parliament, the sum of $1,200 was voted, and on the 6th of June, 1910, authority was received to proceed with the general repairing of wharf, &c., by day labour.

Operations were commenced on the 8th and continued until August 31, 1910, when work was suspended until the close of navigation so as not to interfere seriously with the heavy shipping over the pier. The work was again resumed on February 6 and completed on March 22, 1911, and consisted in the renewal of 90 feet of the flooring with 3-inch planking; the renewal of one snubbing post, as also 180 lineal feet of 6 by 10-inch rock elm waling on easterly side of inner end of pier.

An addition, 37 feet long, was made to the warehouse, together with the necessary pile substructure required for same; the warehouse was then given two coats of paint.

In the performance of the above work some 22 lineal feet of white oak and 12,726 feet, B.M., of elm and pine timber and 694 lbs. of iron were used.

The pier is now in good condition.

The total expenditure during the fiscal year, 1910-11, was $1,060.92.

LIONS HEAD.

Lions Head, Bruce county, is a village of some 600 inhabitants, situated on the west shore of Georgian bay, 22 miles north of Wiarton. There is a large saw-mill in operation there and the output is very large.

At the last session of parliament, the sum of $5,000 was appropriated for repairs to the wharf, and on the 6th June last, authority was given to proceed with the work by day labour.

Work was commenced 27th June and suspended 31st October.

The work consisted in renewing the superstructure of the old wharf with crib-work, some 6 feet in height by 140 feet in length, also driving 130 feet of tongued and grooved piling on the harbour side of the approach and tying same to anchor piles with 1½-inch anchor rods every 10 feet. Ninety feet of the pilework is completed and 40 feet has main piles, anchor piles and tie rods in position.

In doing the above work, some 39,960 feet, B.M., pine; 525 feet, B.M., oak, and 3,995 lbs. iron were used.

On the 26th April last, authority was given to perform certain dredging, the contract for which was awarded to the Dredging and Drainage Co., at the following prices per cubic yard, scow measure:—Class 'A,' $3; 'B,' $1.25; and 'C,' 22 cents.

However, this company found it impossible to perform the work and, at their request, it was transferred to the R. Weddell Co., at the same terms.

Dredging was commenced 10th and completed 15th November.

The work consisted in deepening and widening the turning basin which forms the harbour. The dimensions of the dredged area are as follows: A strip along the southerly side 390 feet in length by 80 feet in width, also a strip adjoining same 150 feet in length by 20 feet in width, also the removal of a shallow spot adjoining the wharf 160 feet in length and varying in width from 21 feet to 30 feet.

In doing above work, some 15,041⅔ cubic yards were removed.

On the 18th October last, authority was given to expend the sum of $700 in placing heavy stone talus for the protection of the beach immediately to the north or lake side of the wharf, as a portion of the beach had been washed away by the heavy seas and the warehouses were in danger of being undermined.

In doing this work some 29¼ cords of stone have been placed in position.

On the 20th October last, authority was given to expend the sum of $450 in gravelling and filling at rear of the piling.

This work was commenced 8th November and completed 15th November.

Total expenditure for fiscal year, 1910-11, is $8,240.89.

L'ORIGNAL.

The departmental dredge *Challenge* worked at L'Orignal, on the Ottawa river (May 18-June 7), during high water, completing a cut discontinued last year on account of low water, said cut being 775 feet long, 25 feet wide, for a least depth of 4 feet, parallel to, and a short distance west of, the dock approach.

Four thousand five hundred cubic yards of clay (scow measure) was removed to complete the work. The improvement was made to facilitate floating of saw logs to the Côté & Cie saw mill jackladder.

M'GREGOR'S CREEK (CHATHAM.)

McGregor's creek runs through the city of Chatham and empties into the Thames river. In the year 1882 dredging was performed by the government in this creek which necessitated subsequent protection of the banks by sheet piling, and said sheet piling has had to be maintained.

Chatham is a thriving city with population of about 10,300. The Grand Trunk railway, Canadian Pacific railway, Pere Marquette railway and the Wallaceburg-Lake Erie electric railway run through this city. There are thirty-two factories employing 1,600 hands, while the adjoining country is very rich in farm products.

At the last session of parliament the sum of $3,000 was voted to complete sheet pile protection work on south bank of McGregor's creek, and on June 6, 1910, authority was received to proceed with the work.

An arrangement was subsequently made with Mr. John Flook, of Chatham, to supply and construct 188 lineal feet of 8-inch southern pine sheeting, 28 feet long, close driven and securely fastened by double 1¼-inch steel tie rods to oak anchor piles driven at 10 foot intervals in rear of piling, at the rate of $15 per lineal foot.

Operations were commenced on September 19 and completed on November 8, 1910; when piling was constructed, two coats of carbolineum avenarius was applied. The work presents a first-class appearance.

During the month of March, 1911, two coats of hot tar were applied to the top of all sheet piling on south side of creek.

Total expenditure during fiscal year 1910-11, including inspection, is $2,999.20.

MAGNETAWAN.

Magnetawan, Parry Sound district, is situated on the river of the same name about 18 miles from Burks Falls.

At the last session of parliament, the sum of $1,200 was appropriated for repairs to the wharf, and on June 6 last, authority was given to proceed with the work by day labour.

Work was commenced on November 3 and completed December 13.

The work consisted in the construction of three small piers, Nos. 1, 2 and 3, two of which have been planked over. Length of planking, 38 by 10 feet in width.

In doing the above work, some 19,950 feet B.M. hemlock, 14,011 feet B.M. pine, 8,600 feet B.M. 3-inch plank, 40 floor poles and 2,970 lbs. iron were used.

The wharf has been practically reconstructed and is 24 feet wide by 88 feet long on front or east face with an 'L' addition 24 feet wide by 32 feet 6 inches long on the south side, making a new approach to the wharf. The whole work is of cribwork and planking.

On March 18 last, authority was given to expend the sum of $250 for the rebuilding of the old warehouse on the wharf, the work to be done under agreement with Mr. A. A. Agar, of Burks Falls. The building is 24 by 40 feet. This work has not yet been commenced.

Total expenditure for fiscal year 1910-11 is $1,201.83.

MALLORYTOWN.

Mallorytown, Leeds county, is a small town on the main line of the Grand Trunk railway, distance 14 miles west of Brockville. Population 350.

On May 13 last, authority was given to expend the sum of $650 for the completion of the wharf extension by day labour, and on July 4 last authority was given to expend $100 additional for the removal of certain cribs near the site of the wharf.

Work was commenced June 12 and carried on till June 24, and from July 1 to 6.

The work consisted in placing a mass concrete superstructure on the cribwork and concrete block substructure, also levelling up and overhauling generally the old wharf which forms an approach to the new extension. The mean length of the concrete extension is 31 by 16 feet. A small crib 15 by 16 feet between the concrete extension and the old wharf was raised to the necessary height and decked. The remains of three cribs were removed from just to the east of the wharf; these formed a menace to navigation by small boats.

In doing the above work, some 48 barrels of cement, 695 lbs. iron, 4,026 feet B.M. pine and 65 cubic yards gravel were used.

Total expenditure for fiscal year 1910-11 is $800.58.

MEAFORD.

Meaford, Grey county, is an incorporated town situated on the west side of the Georgian bay, 21 miles west of Collingwood and 20 miles east of Owen Sound. It is the terminus of the northern division of the Grand Trunk railway. Population 2,500. There is a large grain elevator with a capacity of 750,000 bushels, also a number of factories and mills.

On February 5 last, authority was given to expend the sum of $350 in repairs to the retaining wall by day labour.

Work was commenced April 12 and completed May 6.

A further sum of $50 was authorized for repairs; the work consisted in repairing the concrete revetment wall in front of the elevator at the south end thereof for a length of 122 feet and a width of 4 feet and a height of 3 feet 6 inches, also placing new waling along same for 236 feet and repairing the broken wales where damaged by the steamer *Algonquin,* on the west side of the harbour. This latter work was done with the $50 authorized.

In doing the above work, some 1,664 feet B.M. elm, 436 lineal feet tamarack, 10 feet B.M. cedar, 6 barrels cement, 6 cubic yards gravel and 513 lbs. iron were used.

Dredging.

The departmental dredge *Industry* worked from September 20 to December 3, making a depth of 24 feet below zero. There were three cuts each 500 feet in length, one cut 600 feet in length and one cut 115 feet in length. The total width being 275 feet in the approach to the harbour from the west, also 7 cuts inside the breakwater of the following lengths: No. 1, 130; No. 2, 330; No. 3, 365; No. 4, 390; No. 5, 615; No. 6, 625, and No. 7, 525 feet. Each cut was 43 feet wide. In doing this work some 127,775 cubic yards were removed.

Total expenditure for fiscal year 1910-11 is $5,336.54.

MICHIPICOTEN.

Michipicoten is the name of a river emptying into Lake Superior. It is not navigable from head to mouth owing to sand bars forming along same. The proposed wharf is to be located at Mission village on this river, which is situated about 500 feet west of the mouth. The location is on the original site of a wharf used years ago by the Canadian Pacific railway on the construction of their line. To the west of Mission village some copper mines are in operation and a water-power is being developed on the branch of the river. The Algoma Central railway wharf at Michipicoten village lies about 4½ miles to the west of Mission village.

At the last session of parliament the sum of $5,000 was appropriated for the construction of a wharf.

Contract plans and specifications for same have been duly prepared and forwarded to Ottawa and tenders called, and the work awarded to Mr. D. G. Stewart, of Ottawa, on February 22 last for the sum of $18,430.

Up to date the expenditure is only $335.65.

MIDLAND (TIFFIN.)

Midland (Tiffin), Simcoe county, is a town of some 5,000 inhabitants, situated on an arm of the Georgian bay. It is the terminus of the Midland division of the Grand Trunk railway. Large quantities of lumber are shipped from this place, and there is a large smelter in operation.

Including Tiffin, there are three large grain elevators located here, having a total capacity of 4,000,000 bushels, of which the Grand Trunk railway elevator has 2,000,000 and the others 1,000,000 each.

At the last session of parliament the sum of $120,000 was appropriated for dredging at Tiffin, and on April 15 last, authority was given to continue the work under contract with the Canadian Dredge and Construction Company at the following prices per cubic yard, scow measurement: Rock and boulders containing over 2 cubic yards, $1.75, and ordinary material, 22c.

The work was resumed on April 19 and carried on till December 3.

The work consisted in cleaning up the approach to the slip between the Aberdeen and the Grand Trunk railway elevators for the entire width of 400 feet and a length of 1,523 feet, also cleaning up, deepening and widening the slip in front of the Grand Trunk railway elevator wharf for a length of 600 feet and a width of 210 feet, all to a depth of 25 feet, also the dredging of an area 600 by 13 feet immediately outside the last mentioned, to the rock which is found at a minimum depth of 9 feet below water level.

During this season, some 196,107½ cubic yards, ordinary material, and 27,918½ cubic yards of rock were removed.

Total expenditure for fiscal year 1910-11 is $115,855.64.

MONETVILLE.

At its last session, parliament appropriated $4,500 towards the construction of the improvement in the west arm of Lake Nipissing to make two rock cuts extending navigation through Shanty lake to Monetville.

Work was resumed September 5 last, when a few men were detailed to open up the camp and put the small plant in order.

By the end of September a small orange-peel bucket was on the ground and much work, comparatively, was performed during October and November. In December, however, owing to severe weather, difficulty of keeping men, &c., the work became impossible and had again to be discontinued December 18. A caretaker was left in charge of departmental plant, and his duties included the cutting of some 30 cords of wood for steaming purposes at each cut.

Work was resumed March 13 and the principal cut, 275 feet long, to grade elevation 636, for a bottom width of 25 feet, was well advanced by the end of the month. Owing to the surface being upheaved and work confined between high rock bluffs, progress was very slow. However, over 75% of the work in this cut was completed, and it is considered that six weeks will handle the balance of work at this point. It is intended to time completion of said work with the opening of navigation in order to then remove to the upper cut the plant we have on the ground. The upper cut is less considerable and work there will be advantageous. With grade at 636, a 6-foot navigation can be put through these cuts, when completed, about the same time as the

French river dam, about to be built, is in operation regulating Lake Nipissing water surface at elevation 643.

The expenditure on this work during the fiscal year amounts to $4,374.61.

NEWCASTLE.

Newcastle, Durham county, is situated on the north shore of Lake Ontario, 47 miles east of Toronto. It contains large woollen mills, a tannery and an implement factory, Population 700.

The departmental dredge *Sir Richard* worked from June 22 to August 4 and excavated a cut 40 feet wide between the piers for a length of 500 feet, also a cut 60 feet wide for a length of 650 feet extending from between the piers into the approach. In doing this work some 22,000 cubic yards of other material were removed.

NEW LISKEARD.

New Liskeard (population 3,000), in the district of Nipissing, is located at the mouth of Wahbi river, on Lake Timiskaming.

At its last session, parliament granted $10,000 towards the construction of a pile-work wharf at this place.

Contract, plans, &c., are ready.

Expenditure in 1910-11, nil.

NIAGARA.

Niagara-on-the-Lake, Lincoln county, is situated near the mouth of the Niagara river.

The departmental dredge *Quebec* worked on the shoal approach at the mouth of the river from July 8, to September 8, and dredged four cuts each 42 feet wide. No. 1 being 1,200 feet long; No. 2, 949 long; No. 3, 555 long and No. 4, 325 feet long. This last cut was not all completed.

In doing the above work, some 51,900 cubic yards were excavated.

NORTH BAY.

North Bay (population 10,000), Nipissing district, is an important railway centre on the north shore of Lake Nipissing.

At its last session, parliament granted $1,900 towards repair to the public wharf. Some 2,600 lineal feet of 3-inch hemlock plank was laid in two strips, placed along the approach and landing head. This planking was spaced one inch over the old four-inch pine plank, by means of inch cedar strips, placed longitudinally. Some 2,850 lineal feet of 10 by 10-inch hemlock capping was placed with top at uniform elevation 649 nearly, on painted blocks, boxed at 5 feet centres, on the old 12 by 12-inch pine capping. The capping was painted and a mooring post was placed at the inner corner of the 'L'. Work was done by day labour, from August 8 to September 29.

Total expenditure during the fiscal year, including dredging was $2,759.20.

Dredging.

The departmental dredge *Mattawa* worked at North Bay, on Lake Nipissing, making six cuts agregating 908 lineal feet.

Eight thousand and nine cubic yards of sand (scow measure) was removed, and spoiled 1 mile out in deep water. The work was done to improve the shelter harbour, protected by the public wharf, at this place.

OAKVILLE.

Oakville, Halton county, is situated on the north shore of Lake Ontario, 29 miles west of Toronto. Population, 1,800. It contains several mills, factories and a shipyard. The trade of the place is local. It is a station on the Hamilton branch of the Grand Trunk railway.

At the last session of parliament, the sum of $1,600 was appropriated for repairs to the piers, and on the 6th June last, authority was given to proceed with the work by day labour.

Work was carried on from the 7th to 30th June, and from the 17th to 22nd September.

The work consisted in placing a double line of waling with verticals between at 10 feet centres, for a distance of 300 feet measuring from the outer end of the northeasterly or light-house pier.

In doing the above work, some 306 feet, B.M., oak; 5,903 lbs. iron, and 24,320 feet, B.M., pine were used.

On the 20th September last, authority was given to place large stone talus along the beach to prevent the gravel washing over the pier into the harbour.

This work was commenced 26th October and completed 30th November.

The work consisted in placing large talus in the angle of the northeast pier with the shore line, and extending northerly along the shore line for a distance of 60 feet with a width of 32 feet where it adjoins the pier and of 10 feet at the outer end, for a height of 5 feet above the present water level.

The superstructure of a crib, 42 feet long, was refilled with stone and some large talus placed along the lake side of same to prevent further settlement.

In doing this work, some 980 feet, B.M., pine; 68 lbs. iron; 1,774 cubic yards of large stone, and 7½ toise of stone were used.

The departmental dredge *Sir Richard* worked from 23rd May to 18th June, making a cut from 90 feet wide between the piers to 110 feet in the approach; 668 feet in length on the northeasterly side, and 835 feet in length on the southeasterly side of channel to a depth of 12 feet below zero, also a cut 55 feet wide by 240 feet long through a bar into the inner harbour from the channel.

In doing above work, some 13,600 cubic yards other materials were removed.

The total expenditure for fiscal year, 1910-11, is $2,953.36.

OLIPHANT.

Oliphant is a district, or post office centre, on Lake Huron, in the county of Bruce, on the south end of what is known as the 'Bruce Peninsula,' and is 8 miles distant from Wiarton. It is the principal point of communication between the mainland and the adjacent fishing islands. Population about 200, which is swelled to about 1,000 during the summer season. The greatest draught of water drawn at dock is about three feet. Owing to the prevailing low stage of the water, considerable difficulty is experienced in securing sufficient depth of channel to permit gasoline launches to carry supplies between this point and the islands, and it, therefore, becomes necessary to give the question of the construction of such a channel considerable attention, and an investigation in regard to same is now being made.

On the 7th of May, 1910, authority was received to expend, by day labour, the sum of $75 on general repairs to docks. Work was performed between the 2nd of May and 23rd of June following, and consisted in the raising of one corner of outer crib; the placing of four mooring rings and the repairing of the approach.

Total expenditure during fiscal year, 1910-11, is $75.32.

ORILLIA.

Orillia, Simcoe county, is situated on the west shore of Lake Couchiching, 89 miles nortwest of Peterborough and 23 miles northeast of Barrie. Population, 6,000

On the 15th June last, authority was given to expend the sum of $15 in rounding the corners of the wharf.

The work was performed on the 20th August.

Total expenditure for fiscal year, 1910-11, is $6.

OSHAWA.

Oshawa, Ontario county, is a town of some 5,000 inhabitants, situated on the north shore of Lake Ontario, on the main line of the Grand Trunk railway, 34 miles east of Toronto. It has a large number of important manufactures.

On May 13 last, authority was given to expend the sum of $200 for repairs to the piers and warehouses by day labour.

Work was carried on from June 1 to 15 and from March 28 to 31.

The work consisted in flooring the coal shed and making slight repairs to the tramway and to the weight scales.

In doing the above work, some 3,009 feet, B.M., hemlock and 970 feet, B.M., pine were used.

Total expenditure for fiscal year, 1910-11, is $200.01.

OWEN SOUND.

Owen Sound, Grey county, is situated at the mouth of the Sydenham river which flows into the head of Owen Sound, which is an arm of the Georgian bay. It is the centre of an extensive agricultural district, and is the terminus of the Grand Trunk railway branch of the Georgian Bay and Lake Erie division, also of the Canadian Pacific railway, Toronto Grey and Bruce division. There are several lines of steamers running regularly to and from this place.

On May 27 last, authority was given to perform certain dredging, for which a contract was awarded to the R. Weddell Company on June 22 last at the following prices per cubic yard, scow measure: Class 'A,' $2; 'B,' 75c., and 'C,' 14c.

Work was commenced June 4 and completed September 26.

Authority was also given to perform certain dredging at the Imperial Cement works; the quantity to be limited to 9,000 cubic yards.

This latter work consisted in dredging a channel to the cement wharfs, 550 feet in length by 60 in width, to a depth of 18 feet below zero of harbour gauge. The other work consisted in deepening and widening the approach, at the entrance to the harbour, for a length of 1,300 feet and a width of 300 feet; the location of this work is some 1,400 feet northerly from the north end of the west pier of the harbour. The removal of the strip along the east side of the channel, some 2,000 feet in length with an average width of about 50 feet, also the removal of a number of shallow spots in the harbour which were above grade. All to a depth of 22 feet zero.

In doing the above work some 96,615 cubic yards of other material were removed, also 9,025 cubic yards other materials at cement works.

At the last session of parliament, the sum of $6,000 was appropriated for piling on the west side of the harbour, and on June 6 last authority was given to proceed with the work by day labour. These orders were subsequently countermanded and instructions given to prepare contract plans and specification for this work. However, the work was not proceeded with.

On September 20 last, authority was given to expend the sum of $1,000 in repairs to the revetment wall on the west side of the harbour near the swing bridge. This work was not proceeded with, as an offer for same of $1,700 submitted by a Mr. Clark

was considered excessive. The matter remained in abeyance for a time, and after a report stating that the work could be performed for $1,000, instructions were given to proceed with the work by day labour if the season was not too far advanced for the manufacture of concrete. It was considered that it was too late for this class of work.

Total expenditure for fiscal year, 1910-11, is $15,121.84.

PAVILIONS, ST. LAWRENCE RIVER.

There are seven pavilions which have been built by the federal government on the islands in the St. Lawrence river for the use and convenience of the public for picnics, &c. The two embodied in this report make the total number of such pavilions, nine.

At the last session of parliament the sum of $1,900 was appropriated for the construction of two new pavilions on the government islands, and on May 30 last, authority was given to proceed with the work by day labour.

Work was carried on from July 15 to August 30.

The work consisted in the construction of two octagonal shaped pavilions, two sides being 21 feet each and six sides being 11 feet each, one being located on Picnic island, near Brockville and the other on Aubrey island, near Gananoque, also painting the pavilions on Beau Rivage and Gordon island.

In doing the above work, some 5,905 feet, B.M., hemlock; 400 lbs. iron; 12,876 feet, B.M., pine and a quantity of paint were used.

Total expenditure for fiscal year, 1910-11, is $1,836.45.

PELEE ISLAND.

Pelee island is situated on the western end of Lake Erie, in lat. 41° 46′ N., long. 28°, 45′ W., about 35 miles southeast from the mouth of the Detroit river and 16 miles south of the town of Kingsville, Essex county. Population of the island about 650. Its products are grapes, wine, fruit, tobacco and farm produce. The soil is particularly rich and fertile. A large number of hogs are raised. Owing to the isolated position, the docks of this island are of great importance and service to the inhabitants. For some years past, a regular line of steamers has called between three or four times a week at these docks when weather permitted; during the coming season, two lines of steamers will call.

West Docks.

On the 26th of April, 1910, authority was received to expend $140 on repairs and renewals required to west dock. Operations were commenced on the 7th of May and were completed on the 30th of June following, consisting of the placing of 150 lineal feet of 10 by 12-inch face timbers on north wall; the renewal and repairing of a considerable portion of the decking on outer block, also filling in of portions of roadway to dock with stone. and the surfacing of the entire length of approach with gravel. Three thousand six hundred and twenty-eight feet, B.M., of hemlock timber, 124 lbs. of iron and 2 cords of stone were used.

North Wharf.

At the last session of parliament, the sum of $5,000 was granted towards the extension of 150 feet of this wharf. On the 24th of October, 1910, a contract was awarded to Mr. D. McDermid, of Toronto, for the sum of $13,000.

Active operations were commenced on the 16th of December, 1910, and were in progress at the end of the fiscal year. Work done, to that date, consisted of the building and placing of 150 lineal feet of close-faced cribwork, 40 feet wide, and the

partial filling of same with stone. Good progress was made on this work, considering the isolated locality in which it lies.

Total expenditure during fiscal year, 1910-11, $5,141.99.

PEMBROKE.

Pembroke (population, 9,000), county of North Renfrew, is on the south shore of Allumette lake. It is an important station of the Canadian Pacific railway and Grand Trunk railway, 104 miles west of Ottawa.

Some minor repairs were made during the season 1910, on the flooring of the approach of wharf. This work was performed through an arrangement with the wharfinger, at a cost of $64.50, which was paid out of the general appropriation, 'Harbours, Ontario.'

PENETANGUISHENE.

Penetanguishene, Simcoe county, is a town of some 3,000 inhabitants, situated on the northwest peninsula of the Georgian bay, between Nottawasaga bay and Severn river, 40 miles northwest of Barrie. It is the terminus of a branch of the Grand Trunk Railway, and a large quantity of lumber is shipped from this place. It contains one of the largest tanneries in the Dominion, also a box factory, a number of saw-mills and other industries. It is a most popular summer resort.

On the 16th May last, authority was given to expend the sum of $2,000 in repairs to the wharf by day labour.

Work was commenced 1st September and completed 29th October.

The work consisted in the construction of an extension to the wharf built last year, 215 feet in length by 16 feet in width and 46 feet varying in width from 18 to 28 feet; about 98 feet of the existing wharf was lowered about 18 inches.

In doing the above work, some 1,764 lbs. iron and 43,888 feet, B.M., pine were used.

Total expenditure for fiscal year, 1910-11, is $1,994.83.

PETEWAWA.

Petewawa, in the riding of North Renfrew, is on the south shore of the Ottawa river, 10 miles above Pembroke.

Minor repairs to the planking of the pilework wharf were effected June 2nd to 4th, at a cost of $55.61, which was paid out of the general appropriation, 'Harbours, Ontario.'

PICNIC ISLAND.

Picnic island, Manitoulin island, district of Algoma, is situated about 1½ miles west of Little Current, on the main steamboat channel from Little Current to Sault Ste. Marie. Two saw-mills are located on this island, and the population varies from 50 to 300 according to whether or not the mills are in operation.

At the last session of parliament, the sum of $45,000 was appropriated for dredging, and a contract was awarded to the C. S. Boone Co., at the following prices per cubic yard, scow measurement:—Class 'A,' $1.75.

Work was commenced 24th May and closed for the season 12th October.

The work consisted in drilling and dredging a cut 1,000 feet long by 90 feet wide to a depth of 22 feet below zero gauge, excepting a strip 200 feet long by 30 feet wide from the southerly side at the west end.

During the season, some 28,350 cubic yards were removed.

Total expenditure for fiscal year, 1910-11, is $44,857.35.

POINT EDWARD.

Point Edward is a village situated at the head of and on the easterly side of the St. Clair river in the county of Lambton, adjoining the town of Sarnia, and is 61 miles west of London. It is the terminus of the Grand Trunk railway. It is a port of entry and is the principal port of call for the five steamers of the Northern Navigation company, which load and unload at the Grand Trunk railway's spacious freight sheds. An extensive unloading plant is in use at this place in connection with the unloading of iron ore for the Hamilton Iron and Steel works. An enormous amount of package freight is handled by the Northern Navigation company. It is one of the most important points of shipment of manufactured goods from the east to the west; a large amount of timber and coal were brought in during past season. The annual revenue has reached as high as $200,000. The maximum draught of vessels entering this port is 21 feet. An extensive fishing trade is carried on; the value of the annual catch being in the vicinity of $25,000.

On April 14, 1910, authority was received to expend an approximate amount of $1,200 in deepening the approach to lumber docks located on the bay side and at the southerly end of Point Edward.

Dredging was performed between April 27 and 30, 1910. inclusive, and the material was removed to a depth of 16 feet below L.W.L., necessitating the excavation of 5,908 cubic yards, scow measurement, of sand. The work was performed by Messrs. Manley & Company, of Toronto, at the rate of 18 cents per cubic yard, scow measurement.

Between November 15 and 16, 1910, inclusive, the government dredge *Ontario* deepened the approach to the Grand Trunk railway dock, in the vicinity of the grain elevator, to a depth of 20 feet below L.W.L., removing 300 cubic yards of sand and clay.

On April 27, 1910, an Order in Council was passed granting the Cadwell Sand and Gavel Company, of Windsor, Ontario, the exclusive privilege to dredge the material required to be removed, in order to maintain a sufficient depth of water opposite the docks at Point Edward, on condition that the said mentioned company be allowed to dispose of the dredged material for its own purposes.

Work was started on May 26 last with one boat, but plant was subsequently increased to two boats; both boats carry clam shells with which sand and gravel was lifted, and the material taken away and sold. On December 6, 1910, work was closed down for the winter.

Plant owned by Mr. John M. McKerchey, of Detroit, Michigan, also worked over this area, under privilege granted him by the Ontario government, but whose work had to be watched by this government's inspectors.

The removal of any material to a greater depth than 23 feet below L.W.L. was strictly prohibited, and in the early part of the season some difficulty was incurred in enforcing this regulation. Arrangements subsequently made, however, seems to have overcome the difficulty in this respect.

Until the annual survey is made, it is impossible to state as to whether or not this system of dredging will answer to the requirements of the port, but it is sufficient to say that at no time during the past season have any complaints been received as to boats striking on shoal spots.

Total expenditure during fiscal year, 1910-11, $1,841,07.

PORT ARTHUR.

Port Arthur, a city of 13,500 inhabitants is situated on the west shore of Lake Superior, 1¾ miles north of the river Kaministiquia, district of Thunder bay. It is on the main line of the Canadian Pacific railway and is the lake terminus of the Canadian Northern railway. Some of the chief industries are the Canadian Northern

elevators, having a capacity of 7,500,000 bushels; Thunder Bay, King's and National Elevators; the Pigeon River Company's Saw and Planing mills, turning out 300,000,000 feet of lumber per annum; blast furnace of the Atikokan Iron Company, capacity 200 tons and 100 coke ovens; Canadian Northern Coal and Ore Docks; Marble Works; Sand, Lime and Brick Company; Western Dry Dock and Shipbuilding Company and Northern Islands Pulpwood Company.

The customs receipts for the year ending March 31, were $536,094.54, an increase of $88,154.08 over the year 1910.

The grain shipped during season 1910 was:

	Bushels.
Wheat	22,486,720
Oats	7,011,071
Barley	895,540
Flax	1,405,829

The coal imported was 600,000 tons.

Dredging.

Dredging was resumed in the fish dock slip by contractor W. E. Phin's dredge *Kennaquhair* on the 26th April. Seven days dredging was done in this slip giving a depth of water, at outer end of 22 feet and at shore end 17 and 14 feet only, to accommodate the smaller vessels, 8,215 cubic yards of sand and clay were removed at a cost of $1,067.95.

On the 4th May, this dredge started deepening and widening the entrance channel and slip to the Thunder Bay elevator, commenced in 1909, and was continuously at work until the 26th of November when dredging there was suspended for the season; 514,459 cubic yards of sand, clay, gravel, shale rock and boulders were removed, including 4,750 cubic yards cast, and 8½ rock excavated at an expenditure of $67,373.84. Dredging was carried down to 25 feet below zero of gauge.

Some filling in having taken place in the Canadian Northern and Canadian Pacific railway slip the dredge removed 1,625 yards of clay and sand at a cost of $310.

New Breakwater, Hogan Contract.

Work was resumed on the 9th of June, 829 lineal feet of the superstructure were constructed, making a total of 2,525 feet completed. The remaining 254 feet, comprising two cribs and the headblock, had the concrete footing blocks in place and were ready for the superstructure when a settlement took place and work was discontinued for the season on August 24th. Test piles were driven around the settled portions, and plans and estimates were made for completing the structure.

Old Breakwater.

The superstructure of this breakwater is in a very dilapidated condition from decay; it having been constructed some 25 years ago. Quite a number of the face timbers, cross-ties and deck timbers are quite rotten and the sheeting on lake side in many places washed away. Authority was given to expend $2,000 in repairing the worst places. Arrangements were made to do the repairs by day labour. Work was begun 27th August and continued through September.

Western Dry Dock, Bare Point.

The Great Lakes Dredging Company, having received instructions to proceed with the dredging of an entrance channel to the Dry Dock at Port Arthur, started dredging on the 25th October with the dredge *Dominion*. The dredge worked 11

days, during which time 60,891 cubic yards of sand, clay, hardpan and boulders were removed. The width of channel made was 200 feet and the depth 17 feet below zero of gauge. The dredge *Dominion* was withdrawn from this work and dredge *No. 1* was substituted; this dredge started digging on 9th of November and worked ten days removing 12,524 yards of clay, sand, hardpan, gravel and boulders, being withdrawn on November 19.

No further dredging was done until the 22nd of December, when dredge *No. 15* started to dredge an opening in the coffer dam surrounding the dry dock, of a sufficient width to permit vessels to enter; 7,475 cubic yards of sand, clay, boulders, hardman, shale, rock and gravel were removed, and 800 cubic yards cast over. Dredging operations were suspended on 14th January.

The total amount of material removed from this channel was 80,890 cubic yards. From this amount 2,900 cubic yards are to be deducted as they formed part of the coffer dam and are not chargeable to the government.

Estimates were rendered on account of this work in favour of the Great Lakes Dredging Co. for the dredging done during October and November to the amount of $8,809.80.

Temporary Pile Protection to Dry Dock.

This work was constructed to protect the dry dock until the permanent breakwater is built. The work was begun 27th October, by Messrs. Barnett & McQueen, of Fort William, and consists of rows of piling with waling pieces and cross bracing. The piles were all driven last autumn and the walings and bracings put on after the ice formed. The work was completed 25th February at an expenditure of $9,043.18.

Proposed Bare Point Breakwater.

This breakwater is intended to afford protection to the Western Dry Dock and Shipbuilding plant, and any other industries that may be established in this vicinity. Test piles and hydraulic borings were taken over site of breakwater to determine the nature of the foundation, and cribwork, resting on piles, having been decided upon, plans, specifications and estimates were prepared and sent to the department, also a plan showing sections of different types of structures with probable cost of each.

Total expenditure, during the fiscal year ending 31st March, is $169,687.13.

PORT BRUCE.

Port Bruce is a village, situated at the mouth of Catfish creek, in the county of Elgin, on the north shore of Lake Erie, and about 5 miles south of Aylmer. Population about 150. Surrounding country is a rich farming district. Principal industry is fishing, in the pursuance of which it ranks as an important place; the annual catch having a value of about $20,000.

At the last session of parliament, the sum of $3,000 was voted for an extension to the westerly pier, and on the 6th of June, 1910, authority was received to expend the grant. Subsequently, instructions were received to make a suitable arrangement with Mr. J. H. Smale, of Port Burwell, to perform the work, and in consequence, on the 16th of July last, an agreement was entered into with Mr. Smale, wherein he undertook, for the sum of $2,900, to supply all necessary material and labour for the construction of a crib 92 feet long, 20 feet wide and reaching to a height of 6 feet above L.W.L.; structure then to be filled with stone ballast to within 3 feet 9 inches of top of crib. Notwithstanding that the agreement called for the completion of the work by the 1st of October last, to date, the crib is only constructed in place to a level of six inches above water level, and the stone filling only to within one foot of

L.W.L. The timber to complete the work is all on the ground, but the additional stone filling required is not yet on the site of the work.

Progress, to date, on this work has not been satisfactory, and unless the contractor shows some disposition to complete the work at an early date, it will be taken off his hands and completed by day labour.

The expenditure during fiscal year, 1910-11, $627.10.

PORT BURWELL.

The district of Port Burwell embraces only the harbour and environment thereof and the only work performed here was dredging.

Port Burwell is a police village of 500 inhabitants, and is situated on the north shore of Lake Erie, in the southeasterly corner of the county of Elgin, being 51 miles directly north across the lake from Ashtabula, Ohio, from where the coal is brought, and being 16 miles southerly from Tilsonburg where the coal is either stored or distributed; there being four lines of railway at this latter town, viz., the Canadian Pacific, the Grand Trunk, the Wabash and Michigan Central.

Dredging was done for the purpose of removing much sand from the entrance channel, to enable the car ferry *Ashtabula* to enter the harbour with a full load of coal, there being little or no other shipping carried on except in connection with the fishing industry, in which crafts of comparatively shallow draft are engaged.

No repairs were undertaken during the past year, in anticipation of more extensive repairs than usual being performed in connection with the construction of a proposed breakwater, at the entrance to the harbour.

The customs revenue collected at chief port and outports for the fiscal year ending March 31, 1910.

Ingersoll	$ 40,969 67
Port Burwell	132,314 69
Tilsonburg	25,285 84
Total	$198,470 20

Statement of vessels trading at this port for the year ending March 31, 1910.
Three Canadian steam vessels of 93 combined tons with crews of 21.
Three United States steam vessels of 461 combined tons with crews of 22.

Breakwater.

By an Order in Council a contract was awarded to Mr. M. J. Hogan of Montreal, P.Q., for the construction of a breakwater in the lake, on the 8th February for $157,500.

Dredging.

During the season of 1910, extensive dredging was done to clear the entrance channel of sand, which had been washed thereinto by the prevailing southwesterly storms.

Most of the sand drift occurred during the early part of December, 1909, and to such an extent, that the coal ferry *Ashtabula* went aground on the morning of the 12th December, while trying to enter this port, and was not released till the 24th, when she was brought into the harbour, leaving for Cleveland, Ohio, on the 27th for repairs.

The principal dredging was in the entrance channel, out in the lake, beyond the piers; the turning basin not having been much filled with silt by the action of the spring freshet which was of a mild nature.

The dredge *Edmund Hall No. 1,* of the General Construction and Dredging Company, Limited, received instructions to proceed with dredging on the 25th of April, and started on the 27th to dredge her way out from her winter berth, to a depth of 14 feet, as the river, immediately at a point where it enters the north end of the harbour, had shoaled during the spring freshet.

This dredge did not start the actual contract work until the 7th of May, as she had not a sufficient supply of coal on hand, but from that date until the 3rd July, she continued working, weather permitting, and completed the contract of removing twenty-nine thousand three hundred (29,300) cubic yards of silt and sand to a depth of 23 feet; at a total cost of $8,497.

The government dredge *Industry* arrived at Port Burwell early in the morning of the 28th of April, and during the same afternoon worked at digging her way into a mooring berth, as the 14-foot depth made by the *Edmund Hall No. 1* was not sufficient.

This dredge worked principally out in the lake at such times as the weather permitted, except when changing a five yard for a ten yard dipper on the 7th of June, and dug to a depth of 25 feet.

The dredge has removed 1,071 cubic yards of sand from between the piers and 77,055 cubic yards out in the lake.

Some dredging was done for the second time during the early part of the season.

The whole of the contemplated dredging was completed by the 9th of July and the *Industry* left Port Burwell for Port Stanley on the 16th.

The fall storms had again washed so much sand back into the entrance channel, especially on the 5th and 6th of November, that a draft of about only 17 feet in centre and 14 feet on west side of the channel was obtainable; in consequence, the government dredge *Quebec* and plant was ordered to and subsequently arrived at Port Burwell on the morning of the 20th of November, 1910.

This dredge started operations on the 22nd of November, working 19½ hours in all up to the 7th December, when it closed down for the season; 18¾ hours was spent removing 4,500 cubic yards from lake channel and 200 cubic yards filling in a hole on the dock to enable her to coal up.

The lake work was on the west side of centre line of channel commencing 250 feet out and continuing for 185 feet at a depth of 25 feet and width of 40 feet.

The same dredge *Quebec* commenced again in lake channel on the 21st of March, 1911, and up to the 31st, was only able to work part of two and a half days, it being so windy and rough.

The expenditure for the fiscal year, 1910-11, amounted to $17,783.92.

PORT COLBORNE.

Port Colborne, Welland county, is situated on the north shore of Lake Erie, about 20 miles west of the city of Buffalo. It is the terminus, on Lake Erie, of the Welland canal, and as such is a point of great importance in connection with the transportation of grain and other freight from the west to the St. Lawrence ports.

At the last session of parliament, the sum of $10,000 was appropriated for repairs to the breakwater, and on the 19th May last, authority was given to repair the east breakwater by day labour.

The work consisted in filling, with stone, the breach made in the breakwater, placing blocks behind same and covering the entire breach with 2 feet of concrete for a length of 95 feet and for the entire length of the breakwater. This work was performed under agreement with Mr. M. J. Hogan for the sum of $1,245.90.

On the 24th September last, an agreement was entered into with Mr. M. J. Hogan, to repair the damage done to the pier head of the east breakwater, by the construction of a crib of square timbers, 20 by 50 feet, to be placed as close as possible

to the damaged headblocks, and to have concrete blocks placed there of 4 by 4 by 10 feet, and to have a concrete slab placed on top thereof 3 feet in thickness.

This work is not yet completed, as the season was too far advanced to place the mass concrete decking. The crib is in position and the concrete blocks placed thereon, and this has been covered with large stone to make it as secure as possible for the winter.

Some 678 cubic yards of heavy rip-rap was authorized to be placed on the 4th May last, and this work was duly performed.

Total expenditure for fiscal year, 1910-11, is $4,051.90.

PORT CREDIT.

Port Credit, Peel county, is situated on the noth shore of Lake Ontario, 13 miles west of Toronto, on the Credit river. It is one of the oldest ports on Lake Ontario. About half a mile west of the harbour proper, the Port Credit Brick Works have constructed a breakwater and slip in front of their works. Population, 500. It is a station of the Grand Trunk railway.

The departmental dredge *Sir Richard* worked from the 10th August to 19th November, and excavated three cuts each 30 feet wide and of the following lengths: 918,750 and 700 feet, all to a depth of 16 feet.

In doing the above work, some 27,220 cubic yards were removed of rock which had previously been drilled and blasted.

PORT ELGIN.

Port Elgin is a harbour of refuge, situated on the east shore of Lake Huron, in the county of Bruce, 5 miles south of Southampton, and 56 miles north of Kincardine, on the Wingham, Grey and Bruce Division of the Grand Trunk railway. Population about 1,600. The principal exports are lumber, tanbark and brick, while salt, cordwood and general merchandise are brought in. The Grand Trunk railway have constructed a spur line from the station to the pier.

At the last session of parliament, the sum of $5,000 was voted for repairs and renewals to landing pier, and on the 23rd of June, 1910, authority was received to expend the grant by day labour.

Operations were commenced on the 5th of July, 1910, and continued until the 22nd of December following, when they closed down for the winter; they were again resumed for three days in March, 1911.

Work performed consisted of the stripping of 153 feet of face timbers of dock to depth of 18 inches below L.W.L., also partial stripping of approach to same; the construction of a timber grillage on the above mentioned length of crib; the construction and placing on said grillage of 36 footing blocks, as also the construction of concrete face wall for a length of 21 feet, and reaching to a height of 5 feet above L.W.L. In performing this work, considerable decking and stone filling had to be removed. A small groyne was constructed at entrance to harbour for test purposes, with a view to locating the directions of the current and consequently heavy filling into channel which occurs.

Dredging.

On the 23rd of April, 1910, authority was received to proceed with dredging at this point, a contract for which had been awarded to the Dredging and Drainage Company of Ontario, Limited, of Toronto, at the rate of 22 cents per cubic yard, scow measurement.

Dredging was commenced on the 8th of August, 1910, and was completed on the 4th of October following, and consisted in deepening of entrance channel to a depth of 13 feet below L. W. L. Some 23,542 cubic yards of sand were removed.

In the performance of repairs to piers some 12,543 feet, B.M., of hemlock, pine and ash timber, 4,421 lbs. iron and 300 brls. of cement were used.

The total expenditure during the fiscal year, 1910-11 was $7,308.

PORT HOPE.

Port Hope, Durham county, is situated on the north shore of Lake Ontario, 63 miles east of Toronto, on the Grand Trunk railway. The chief trade is in lumber and grain. It has a number of important industries. Population, 5,000.

At the last session of parliament, the sum of $5,000 was appropriated for repairs to the piers and on the 6th June last, authority was given to proceed with the work by day labour.

Work was commenced 27th June and closed for the season 7th December.

The work consisted in the completion of the mass concrete superstructure on the concrete blocks, and crib substructure for a length of 150 feet by 4 feet in width and 2 feet in thickness on the east pier of the inner easterly harbour, also the renewal of the south end of the centre pier of the harbour for a length of 65 feet with a height of 7 feet.

In doing the above work, some 33,608 feet, B.M., pine, 75½ barrels of cement, 59 cubic yards of gravel and 884 lbs. iron were used.

On the 29th April last, authority was given to perform certain dredging, the work to be done by Mr. W. E. Phin, at the following prices per cubic yard, scow measured, class 'A', $2.75, 'B', $1, 'C', 18 cents.

Work was commenced 4th May and completed 3rd June.

This work consisted in deepening and widening the approaches to the harbour, also the general deepening and cleaning up of portions of the easterly and westerly inner harbours, all to a depth of 15 feet below zero of gauge at Toronto.

In doing above work, some 39,120 cubic yards other materials were removed.

Total expenditure for fiscal year, 1910-11, is $10,303.92.

PORT ROWAN.

Port Rowan, in the county of Norfolk, is situated on the north shore of Lake Erie, in the inner bay of Long Point, and is 21 miles from the town of Simcoe. Population about 1,000. It is a favourite summer resort, and a considerable amount of fish is shipped over the dock. A large number of launches and light draught tugs utilize these piers continually, more particularly during the summer season, and it is a harbour of refuge for crafts of this character.

On the 26th July, 1910, authority was received to expend $250 on urgent sundry repairs required to landing pier, and on the 3rd of August following, further authority was received to expend the sum of $400 in removing logs, trees and other obstructions in the channel between Port Rowan and Point Hawk lighthouse, or approximately for a distance of 6 miles.

The above work was performed between 22nd August and 12th October, 1910.

The condition of this landing wharf is such that it will be impossible to maintain it in a safe condition for traffic unless a considerable expenditure is made upon it at some early date.

In the execution of the above work some 6,208 feet, B.M., of pine timber and 278 lbs. of iron were used.

The total expenditure during the fiscal year, 1910-11 was $644.78.

PORTSMOUTH.

This pier which is of heavy timber cribwork was repaired by renewing much of the flooring, face timbers, upper cross-ties, string pieces and some filling.

The material was supplied by the lowest three tenderers and the work was done by day labour.

The pier is in itself a breakwater and forms a small refuge harbour called Portsmouth bay.

PORT STANLEY.

Port Stanley is an important harbour of refuge, situated on the north shore of Lake Erie, at the mouth of Kettle creek, in the county of Elgin, 8½ miles, by rail, south of the city of St. Thomas and 23½ miles south of the city of London. It is the terminus of the Père Marquette railway, and of the London and Lake Erie railway and Transportation Company. It is a favourite summer resort. Population about 750, which is largely increased during the summer months.

A large coal ferry, owned by the Lake Erie Coal Company, of Wakerville, Ontario, and carrying 30 cars, each of a capacity of 100,000 lbs., plies between this port and Conneaut, Ohio, making on an average two round trips every 30 hours. During the season of 1910, approximately 400,000 tons of coal were brought into this port by car ferry. It is a port of entry, and the revenue collected during the past fiscal year amounted to $97,186.29, or approximately $15,000 greater than the previous year. It is the most important fishing point on Lake Erie, some 15 tugs being engaged in this business. During the season of 1910, the catch amounted in value to approximately $130,000. It is a regular port of call for four lines of steamers, carrying passengers and considerable package freight. There is a small grain elevator which handles approximately 100,000 bushels of grain each season.

Maximum draught of vessels entering the harbour is about 17 feet.

In addition to the materials already mentioned, imports consist of timber, ties, fence posts and general merchandise.

At the last session of parliament, the sum of $9,000 was voted for harbour improvements, and on the 13th of April, 1910, authority was received to expend, by day labour, the grant; on the 17th of June following further instructions were received to expend only $8,301.30 of the above mentioned sum, on repairs and renewals to piers.

Operations were begun in the beginning, and were still in progress at the end of the fiscal year, and the work performed consisted of the removal of 150 feet of west pier and the total renewal of same, with the exception of the concrete covering. The design of this new work consists of a substructure of two walls of piling with stone filling between, the whole tied back with 1½-inch tie rods to oak anchor piles driven at intevals in rear of substructure; the superstructure consisted of re-informed concrete walls with cross-ties of a similar character with stone filling between; oak walings were placed in front of structure, a first-class permanent work was thus provided.

General repairs were made to decking of west pier, some 1,500 feet, B.M., plank being used; minor repairs were also made to the decking of easterly pier, 500 feet, B.M., of new plank being relaid thereon and end repaired. Minor repairs were made to breakwater. Floating pile driver was purchased. Some piles required for coming season's work were also purchased.

The outerly end of westerly pier was damaged during the fall of 1910, by the car ferry. The necessary repairs were made by this department and paid for by the Lake Erie Coal Company.

Dredging.

The government dredge *Industry* started at the beginning of the fiscal year to enlarge and deepen inner basin of harbour and worked until 23rd of April, after which plant was removed to Port Burwell. Subsequently, the dredge returned to Port Stanley and resumed work on the 18th of July and continued until the 1st of September, following, when plant moved to Meaford. A large area was dredged in

inner basin to a depth varying from 21 to 16 feet below L.W.L. The outer entrance channel was also very much improved, a depth of 22 feet being provided over the area dredged. In addition, 190 feet of westerly pier previously mentioned, was removed by this dredge.

In the performance of the above works, some 36 brls. of cement, 36¾ cords of gravel, 704 tons of stone, 16,645 lbs. of iron, 3,985 lineal feet of oak and tamarack piles, and 5,656 feet, B.M., of hemlock, pine and oak timber were used.

The total expenditure at this point during the fiscal year, 1910-11, was $16,706.87.

PROVIDENCE BAY.

Providence Bay, district of Algoma, is situated on the south shore of Manitoulin island, Lake Huron, about 12 miles northwest of Michael's Bay, 30 miles by road from Manitowaning, and 25 miles from Gore Bay. Population, 300. It has a large saw-mill; is a fishing station of considerable importance, and is one of the principal ports on the island, at which all local steamers call.

At the last session of parliament, the sum of $5,000 was appropriated for the construction of an extension to the wharf.

Contract plans and specifications were duly prepared and forwarded to Ottawa, tenders called and the work awarded to Mr. C. H. Sherwood, of Port Arthur, for the sum of $15,428.

This work has not yet been commenced.

At the last session of parliament, the sum of $3,650 was appropriated for the construction of a warehouse on the stone embankment protected by cribwork, and on the 6th of June last, authority was given to proceed with the work by day labour.

However it was found impossible to proceed with the construction of the warehouse until the new wharf extension has been built.

Up to date the expenditure is only $416.70.

RAINY RIVER.

Rainy river, of the district of Rainy river, runs from Rainy lake to Lake of the Woods, a distance of some 30 miles, and forms the boundary line between Ontario and Minnesota. The river has an average depth of some 18 feet, but shoal water obstructs the outlets. There are two outlets for Rainy river; one past Oak Point, which was the main channel and the other back of the Sand Hills (Sable island) near Burton island.

Lumbering is the chief industry of this section and logging operations are carried on between Rainy river and Kenora, on Lake of the Woods.

On the 17th May, 1910, an Order in Council was passed awarding dredging work at Rainy river to Mr. A. F. Bowman, of Southampton, at a price of thirty-seven (37) cents per cubic yard. Work was commenced on May 25th. The dredging consisted in deepening the towing channel back of Sable island at mouth of Rainy river to a depth of 10 feet.

The major portion of the work being near Burton island, where a section 2,800 feet in length by 200 feet in width was dredged to a depth of 10 feet at low water level.

129,427 cubic yards were removed from this section.

Another section dredged was located near lighthouse at mouth of river.

A section 880 feet in length by a maximum width of 100 feet was dredged over, and 20,240 cubic yards sand and clay were removed.

On October 11, authority was granted for an extra month's dredging in this locality.

Work closed down for the season on November 3rd. A total of 149,667 cubic yards of sand and clay were removed.

During January and February, a complete survey of the dredged areas was made and some 8,000 soundings were recorded and plotted on plans.

Total expenditure for fiscal year, 1910-11, is $56,248.08.

RESTOULE BAY.

The departmental dredge *Mattawa* worked in Restoule bay, French river (August 22 to September 10) making cuts aggregating 717 lineal feet 30 feet wide, to a least depth of 10 feet in the inner bay.

Eight thousand six hundred and twenty cubic yards of clay, mud and deposit, scow measure, being first cast over, in part, and then spoiled to the adjacent deep water. The improvement, which was commenced in 1909, was executed to facilitate the scowing of supplies, &c., to heavy lumbering establishments in that locality.

RIVER AUX SABLES.

River aux Sables is located on the easterly shore of Lake Huron, into which lake it empties, at a point about 13 miles north of Southampton; it is a summer resort, and considerable lumber is shipped out annually from the large mill located 5 miles up the river.

The entrance to this river had become blocked to such an extent that it was found necessary to adopt some means to open it up for the safety of navigation, and in consequence, at the last session of parliament, the sum of $2,600 was voted for the construction of a checkwater pier, at the mouth of the river, and on the 6th of June, 1910, authority was received to proceed with this work, by day labour.

Work was commenced on the 8th of June and completed on the 13th October, 1910, and consisted in the construction of 573 lineal feet of cribwork, partially open and partially closed-face timber-work, filled with stone ballast, surfaced with gravel, and varying from a total height of 6 feet at inner end to 7 feet 6 inches at outer end. From inner end of checkwater, rip-rap has been placed on both sides for a length of 160 feet. Five-inch by 6-inch waling was placed at the outer end of river side for a length of 160 feet, and seven mooring posts and rings were placed, as also four iron corner straps on outer end of crib.

Total expenditure during fiscal year, 1910-11, was $2,597.70.

RIVER ST. LAWRENCE.

The object of this work is to improve the Canadian or middle channel in the upper St. Lawrence river for 14-foot traffic. It consists entirely of the removal of rock, under water, to a depth of 16 feet at low water, the contract price being $3.95 per cubic yard in place.

The work was started in April, 1909, and has continued ever since during the open season.

The work, to the present time, has been confined to 'Fiddlers Elbow,' where the heaviest cutting is located.

The contract was originally let to Mr. Frank Gilbert, of Montreal, on February 1, 1909; in October, 1909, Mr. Gilbert transferred the work to Mr. E. G. Evans, also of Montreal, with the consent of the department.

The plant consists of a drill boat carrying two drills, two tripod drills, the endless chain dipper dredge *Premier*, one 100 cubic yard capacity dump scow with double pockets, the tug *Beaver*, 10 by 10 noncondensing, one deck scow, one house boat, a shore camp, &c.

The total amount of rock excavation under consideration of removal is 29,400 cubic yards, 23,000 cubic yards being at the 'Elbow.'

To date, 9,338 cubic yards have been removed and approximately 4,480 cubic yards have been drilled and blown, but not yet excavated. Work progresses slowly.

RIVER THAMES.

The River Thames flows through the city of Chatham, and 18½ miles west from the latter place it empties into Lake St. Clair. At its mouth, a channel 8,100 feet in length has to be maintained in order to reach deep water in the lake. Owing to the shifting character of the bottom of this channel, the material being sand, continual filling in occurs, and in consequence the cleaning out of the channel has to be performed almost annually in order to provide a minimum depth of 12 feet. A steady traffic prevails in and out of this river throughout the season from the city of Chatham and the smaller points lying between the city and the mouth of the river. The Chatham Navigation Company operate a passenger and freight boat between the cities of Chatham, Windsor and Detroit, and makes three round trips per week. The maximum draught, as far as Chatham, is about 10 feet. With the performance of proposed dredging of bars and widening of channel at bends of the river, this draught will be increased to about 13 feet.

Dredging.

On June 13, 1910, authority was received to proceed with dredging, a contract for which had been awarded to Mr. W. E. Phin, of Welland, Ontario, at the rate of 17½ cents per cubic yard, scow measurement.

Operations were commenced on June 16, 1910, and were carried on continually until November 30 following, when plant laid up for the winter.

Work performed consisted of the dredging of an entrance channel to river, 8,700 feet long, 100 feet wide, to a depth of 14 feet below L.W.L., also the deepening and widening of channel at different points in the river and covering an aggregate distance of 4,810 feet, providing a minimum depth of 13 feet below L.W.L. The work performed has proved of great benefit to boats navigating this 18 miles of river between Lake St. Clair and Chatham, but there still remains several bars to be removed and considerable widening of channel to be performed.

In the performance of the above work some 99,279 cubic yards, scow measurement, of clay, sand, gravel and silt were removed.

Removal of Obstructions from River.

On July 22, 1910, authority was received to expend, by day labour, the sum of $2,000 in removing sunken snags and logs in river between Chatham and the mouth of the river.

Arrangements were made with Mr. D. Sheffield and Capt. D. W. Crow, of Chatham, to supply suitable logging plants with all necessary labour, and at the rates of $12 and $8 per day respectively. Owing to the difficulty in securing labour, the crew working on Sheffield's plant was subsequently reduced, and his price reduced accordingly at the rate of $2 per man.

Operations were commenced on August 8 and continued until November 25, when work closed down for the winter, and during which time some 3½ miles of the river, from Chatham downwards, were practically cleared of all logs, trees, snags and other obstructions, and the work performed has already proved of great benefit. Some 3,000 pieces of material, as described, were lifted and disposed of, and 3,137 feet, B.M., of saleable logs were sold for $24.77, and with which amount the work was credited.

It is hoped that a further appropriation will be granted for this work this season as there still remains a large amount of material which required to be removed from

the channel of this river, and the presence of which, without doubt, is responsible in many cases for the formation of sand bars which interfere so seriously with navigation.

Total expenditure on these works during fiscal year, 1910-11, was $19,701.89.

ROBIN'S LANDING.

Robin's Landing, Northumberland county, is situated on the north shore of Rice lake. The wharf is used for the shipment of farm produce, &c.

The services of Mr. Jos. Robin's were engaged to cut the ice around the wharf to prevent damage by ice shoves.

Total expenditure for fiscal year, 1910-11, is $50.

ROCHE'S POINT.

Roche's Point, York county, is a small summer resort on the west shore of Cook's bay, an arm of Lake Simcoe.

On the 16th June last, authority was given to expend the sum of $25 in rounding the waling on the outer corners of the wharf, also repairing the stone approach by day labour.

The work consisted in placing large stone in the approach where it adjoins the timber wharf also in rounding the outer corners of the timber wharf.

In doing the above work, some 7 cubic yards of stone were used.

Total expenditure for fiscal year, 1910-11, is $25.

ROCKLAND.

The departmental dredge *Challenge* worked at Rockland, on the Ottawa river (May 12th to 17th), making a cut 69 feet long and 34 feet wide to improve the log slips of the W. C. Edwards Company, Limited, sawmill.

Six hundred and fifty cubic yards of clay (scow measure) were removed to a least depth of 5 feet and spoiled in deep water close by.

The foundation of an old pier was also removed.

RONDEAU.

Rondeau is an important harbour of refuge, and a port of entry, situated on Pointe Aux Pins, about 19 miles south of the city of Chatham and 45 miles west of Port Stanley. It is a favourite summer resort, and the terminus of the Sarnia and Rondeau branch of the Pere Marquette railway. Population about 125 and which is increased to about 600 during summer months.

In the inner harbour, and at westerly side along coal dock, a modern and extensive coal handling plant is used by the Lake Erie Coal Company for unloading coal from their boat, which runs regularly between this point and Conneaut, Ohio. Approximately 200,000 tons of coal are brought in annually by this company, and the duty collected last year amounted to approximately $56,395.70; such revenue is increasing annually. Fish trade is carried on at this point, and some 229 vessels cleared during the past season.

Maximum draught of the boats entering this port is about 18 feet.

At last session of parliament, the sum of $200,000 was voted for harbour improvements, and at the beginning of the present fiscal year, the construction of a breakwater extension to westerly pier was in progress: a contract for which was awarded to Mr. Wm. Bermingham, of Chatham, Ontario, on the 26th of March, 1909, for the sum of $229,000.

Active operations were resumed on the 2nd of April, 1910, and by the end of the fiscal year, 10 cribs composing the substructure of the breakwater, were constructed, placed and filled with stone ballast.

A gap, approximately 10 feet in length, between inner end of new breakwater and outer end of existing westerly pier, was filled to within one foot of low water level with a close-faced crib, filled with stone ballast. On the 24th of September, 1910, authority was received to have this work performed by the contractor Mr. Bermingham, for the price of $2,300, said price to include superstructure of this 10 feet.

Excellent progress was made with this work, the substructure of which was completed, and it is expected that the superstructure will be completed by the end of this season. That portion of structure built has already proved of great protection to the boats entering this harbour with a heavy sea from the southwest.

Dredging.

On the 30th of April, 1910, authority was received to commence dredging of 71,000 cubic yards of material, a contract for same had been awarded to the Windsor Dredging Company, Limited, of Windsor, Ontario, at the rate of 25 cents per cubic yard, scow measurement, and on the 5th of October following, authority was received to remove an additional amount of approximately 17,000 cubic yards, place measurement, in the extension of the Lake Erie Coal Company's slip, at the rate of 25 cents per cubic yard.

Dredging was commenced on May 25th and completed on the 19th of November, 1910, and consisted of the dredging of channel at outer entrance to piers to a depth of 21 feet; a portion of channel between piers to 20 feet, and a 315 foot extension to the Lake Erie Coal Company's slip to a depth of 17 feet below low water level. In the performance of this work, some 71,000 cubic yards, scow measurement of clay and sand, and 17,054 cubic yards, place measurement, of clay and sand were removed.

Repairs.

On the 4th of April, 1910, authority was received to proceed with sheet pile protection work required at outer end of both piers, an expenditure limited to $400; on the 13th of June, and the 4th of November, following, the additional amounts of $1,600 and $1,000 were authorized, making the total amount for repairs, $3,000.

Operations were commenced on the 2nd April and were carried on until the 11th January, 1911; they were completed during the month of March, following.

The work performed consisted of the removal of 62 lineal feet of decayed sheeting from outer end of east pier, and the driving of 62 lineal feet of 8 inches and 12 inches sheeting, varying in lengths from 32 to 36 feet, at the outer end of this pier, and securely bolted on to the pier, and 8 inches by 10 inches waling was placed. Seventy lineal feet of decayed sheeting at outer end of west pier was removed, and 49 piles pulled which interfered with the construction of new breakwater. Seventy feet of 8 inches pine sheeting, 34 feet long was then driven across outer end, and for a return of 10 feet on each side of pier, and securely fastened to same. Heavy pine walings are placed on the 10-foot returns.

In the month of October, 1910, the steam barge *Lycoming* caught fire between the piers and the fire spread to the westerly pier, at the same time she partly damaged easterly pier; this damage was repaired during the months of December, January and March, following, and consisted in the removal of 24 feet of the decking and portion of the stone filling of easterly pier, the replacing of same, together with the renewal of two mooring posts and a number of cross ties. One hundred and twenty-eight feet of inner face of west pier was removed from about water level, together with a portion of cross ties and decking in rear of same.

Completion of above repairs left the decking of these piers in fair condition, but a large portion of the face timbers are showing signs of age and consequent decay.

In the performance of these repairs some 35,831 feet, B.M., of hemlock, pine, oak and cedar timber and 2,419 lbs. of iron were used.

Total expenditure during the fiscal year, 1910-11, was $106,401.38.

ROSSEAU.

Rosseau, district of Muskoka, is a popular summer resort at the northerly end of Lake Rosseau. It is largely patronized by tourists.

On May 7 last, authority was given to expend the sum of $230 on repairs to the warehouses on the government's wharf, the work to be done by day labour.

Work was commenced 11th and completed July 26.

The work consisted in reshingling one warehouse and putting new floor in same; repairing floor and roof of another building with the good shingles and flooring from the first mentioned building, and giving all the building a coat of paint.

In doing this work some 68 lbs. iron, 12 quarts paint, 518 feet, B.M., pine and 17 M. shingles were used.

Total expenditure for fiscal year, 1910-11, is $230.76.

RUNNING CREEK.

On August 31, 1910, authority was received to expend a grant of $5,000 towards the dredging of Running creek, between the north branch of the Sydenham river and the Chenal Ecarté river, on an arrangement that the government of Ontario would subscribe a similar amount towards the work in question, and that the said work be performed by the municipality to the satisfaction of this department and the Ontario government.

Work was commenced about September 1 and ceased on December 6 last.

SARNIA.

Sarnia is a thriving town, situated on the east bank of the St. Clair river, in the county of Lambton, about 3 miles south of Lake Huron, and 59 miles, by rail, from the city of London. It is served by both the Grand Trunk and Pere Marquette railways. Population about 9,800. It is a port of call for a large number of vessels, some 2,284 having called and departed during the season of 1910; it is an important shipping point and a port of entry. Many large industries are located at this point, and the revenue is increasing steadily. Maximum draught entering this port is 21 feet.

On May 6, 1910, authority was received to expend an approximate sum of $4,990 in the deepening of approach to docks at Sarnia, the work to be performed by the Manley Company, of Toronto, at the rate of 18 cents per cubic yard, scow measurement.

Operations were commenced on May 17 and completed on May 23, 1910; 27,400 cubic yards of clay were removed and a depth of 18 feet below L.W.L. provided.

Between November 7 and 12, inclusive, the government dredge *Ontario* was employed in removing obstructions which had formed in front of the Imperial Oil Company's docks, and also the Pere Marquette railway company's docks; a depth of 20 feet below L.W.L. was provided; 1,300 cubic yards, scow measurement, of clay were removed.

Total expenditure during fiscal year, 1910-11, was $5,211.22.

SAUGEEN RIVER.

Saugeen river empties into Lake Huron, at a point about 32 miles from Walkerton, and about 43 miles from Sarnia. At the mouth of the river is situated the thriving town of Southampton; the harbour at the mouth of the river is utilized by a large number of deep draught tugs, it is also an important harbour of refuge; maximum draught of vessels about 10 feet. A large amount of fish is shipped annually from this point; value of catch last year amounted to $34,615.

On the 6th of July, 1910, authority was received to expend $500,

Operations were commenced on the 26th of July and were practically completed on the 30th of November last. During the month of March, 1911, material was secured for repairs required during present fiscal year.

Work performed, consistetd of the renewal of face timbers on inner side of north pier. A stone revetment work, 100 feet long and approximately 15 feet high, was constructed at inner end of north pier to prevent further scouring at this point.

Several courses of stone filling were renewed in north pier, and other minor repairs made.

On south pier, four large holes caused by scour, were filled in with stone; 4-inch sheeting was driven along face of pier; portion of decking of outer end of outer cribs; stone filling in said cribs partially renewed and decking relaid. Three snubbing posts were renewed.

The completion of the above work left the piers in fair condition.

In the execution of the work some 3,145 feet, B.M., of hardwood, hemlock and tamarack timber, 25 loads of stone and 308 lbs. of iron were used.

SAULT STE. MARIE.

Sault Ste. Marie, district of Algoma, is situated at the head of St. Mary's river, which connects Lake Superior with Lake Huron. Population 10,500. It is on the main commercial route from the 'Great West' to the seaboard. The tonnage passing through the 'Soo' canal is enormous.

On the 6th May last, authority was given to repair the damage done to the government wharf by the Canadian Pacific Railway steamer *Athabasca* colliding therewith. The expense thus incurred to be borne by the Canadian Pacific railway.

Work was commenced 16th May and completed 21st June.

The work consisted in repairing the outer face of the wharf for a length of 30 feet by a height of 6 feet and a width of 6 feet at the base by 4 feet at the top; placing 50 feet of new 12 by 12 inch oak waling; a new concrete floor in the warehouse covering an area 40 by 55 feet, also repairing the roof and doors.

In doing this work, some 115 lbs. iron, 32 cubic yards sand and gravel, 152 barrels cement and 1,240 feet, B.M., pine were used.

On the 23rd May last, authority was given to expend the sum of $225 in repairs to the wharf and on the 7th July an additional amount of $675 was authorized for the same purpose, the work to be done by day labour.

Work was carried on from 31st May to 11th June and from 18th to 20th July and from 1st to 6th August.

In doing this work, some 22,200 feet, B.M., hemlock were used.

On the 11th May last, authority was given to complete the dredging at this place under contract with Mr. A. F. Bowman at the following prices per cubic yard, scow measurement: rock, $3.15; boulders, $1.50 and other material, 57c.

Work was resumed on the 12th May and completed 13th June.

This work consisted in the sweeping and cleaning up of the easterly approach to the government wharf and in so doing some 3,970 cubic yards of rock and 8 cubic yards of boulders were removed.

On the 16th July last, a contract was awarded to Mr. J. F. Boyd to construct an extension to the government wharf for the sum of $16,400.

Work was commenced 8th August and closed for the season 15th November.

During this season, a crib was constructed 100 feet long by 50 feet wide with cribwork substructure and concrete superstructure, composed of block and mass concrete.

Total expenditure during fiscal year, 1910-11, is $21,307.95.

SHREWSBURY.

Shrewsbury is a small village on the north shore of Rondeau bay, in the county of Kent, 20 miles southeast of Chatham, and 5 miles south of Blenheim; it in in the centre of a farming district. Population, about 60.

On the 2nd of June, 1910, authority was received to expend $30 in repairing approach to dock.

Necessary work was performed on the 25th of June, and consisted of the bridging of a 20-foot gap, with a 3-inch deck laid on 4-inch by 8-inch joists which rested on cedar posts.

Some 539 feet, B.M., of white pine and 60 lbs. of iron were used.

Total expenditure during fiscal year, 1910-11, was $29.85.

SIBLEY HARBOUR (SILVER ISLET).

Sibley Harbour, Thunder Bay district, lies near Silver Islet, on the north shore of Lake Superior, about 24 miles east of Port Arthur. The wharf referred to is located on Silver islet.

At the last session of parliament, the sum of $2,000 was appropriated for repairs to the wharf, and on the 6th June last, authority was given to proceed with the work by day labour.

The work consisted in the renewal of the superstructure to 5 feet above water level for a length of 127 feet by a width of 38 feet, also the renewal of the wooden approach, 38 feet long by 16 feet wide. The wharf is composed of four cribs and three spaces.

In doing the above work, some 2,400 lbs. iron, 24,099 feet, B.M., pine, and 500 feet, B.M., tamarack were used.

Total expenditure during fiscal year, 1910-11, is $2,056.60.

SOUTHAMPTON.

Southampton is a prosperous town situated at the mouth of Saugeen river, in the county of Bruce, and on the easterly shore of Lake Huron, 32 miles from Walkerton, the county town. It is the terminus of the Grand Trunk railway, and a harbour of refuge. Population, about 2,000. It is a favourite summer resort. During the season of 1910, some 202 vessels entered this port; cargoes carried by the same consisting chiefly of lumber, ties, cedar posts and firewood. Maximum draught, 12 feet.

At the last session of parliament, the sum of $6,000 was voted for harbour improvements, and on the 17th of June, 1910, authority was received to expend, by day labour, the sum of $5,154.10.

On the 20th of June, 1910, authority was received to remove 12,000 cubic yards of material in deepening approach to north side of town dock at this point; work to be performed by the Dredging and Drainage Co., of Ontario, Limited, of Toronto, at the price of 25 cents per cubic yard, scow measurement. On the 22nd September, following, authority was given to expend $500 to cover the cost of dredging required to deepen the approach to the Goderich Lumber Co.'s mill, and which amount was increased on the 20th of October last by $640. In addition, on the 29th of October authority was received to perform three day's dredging at Saugeen river.

Operations were commenced on the 8th of October and were continued until the 30th of November, 1910, when, owing to the inclemency of the weather, plant started to lay up for the winter.

Work performed, consisted of the deepening of area immediately adjoining north side of town dock, 584 feet long and with an average width of 55 feet on north side of town dock, to a depth of 13 feet below L.W.L., thus permitting vessels to unload within 116 feet of the shore line of this dock; two cuts, 44 feet wide, 250 feet long,

were made with a depth of 12 feet below L.W.L., approaching Goderich Lumber Co.'s ladder, thus enabling logs to be brought to this point to be more readily handled.

At the upper end of the town dock at Saugeen river, dredging was performed to allow boats to safely land and turn at this portion of the river. In the performance of this work some 14,437 cubic yards, scow measurement, of sand, clay and gravel were removed, and 1,596 cubic yards of same material over-cast.

Operations were commenced on the 10th of June and continued until 31st March, 1911. The work performed consisted of the renewal of 365 feet of the inner end and south face of town dock with concrete wall; eight concrete snubbing posts were also constructed on this dock, together with a few minor repairs. General repairs and renewals were made to face timbers and decking of both breakwaters between the mainland and Chantry island. The work done on the town dock now leaves that structure in excellent condition, and the renewals and additions made to it, within the past two years, have tended to largely increase the traffic at this point.

Regarding the breakwaters above mentioned, and which together form an aggregate length of 4,560 feet, extensive repairs and renewals will require to be made annually to these structures, as, owing to the fact that they were constructed of timber many years ago, evidences of decay are very plain, and continued care and expense is necessary to avoid heavy breaches from seas from the northwest. The maintenance of these structures, as a protection to the town dock, is an absolute necessity.

In the performance of the above repairs and renewals some 81,039 feet, B.M., of hemlock and pine timber, and 28,035 lbs. of iron were used.

The total expenditure during the fiscal year, 1910-11, was $9,994.12.

SOUTH NATION RIVER.

(Cemetery, Plantagenet.)

The South Nation river, 1¼ miles below the Pitch-off, at Plantagenet, has another restricted flow section which forms a considerable obstruction to the high water discharge, each spring. It was decided, therefore, to increase, as much as possible, the said minimum section. The work consisted in removing, on either side, strips consisting of large boulders over bedded gravel and indurated clay, and depositing this to form rip-rap walls protecting the banks where the slopes were increased, or wasting, below in the larger flowing section. This work was performed September 6th to November 6th, at a cost of $1,048.58. The minimum flowing section was increased 195 superficial feet. The yardage handled being 1,080 yards (in situ), at a unit cost of 97 cents per yard. Under separate heading, the work at the Pitch-off, a short distance up stream, is reported on. The total expenditure for completing work at the Pitch-off and opposite the cemetery, amounts to $4,175.56.

SOUTH NATION RIVER.

(Pitch-off, Plantagenet.)

The work of improving the South Nation river at the Pitch-off, Plantagenet, was completed (June 9 to September 8) at a cost of $3,125.01. Two short cuts on the west side of the stream, 98 by 188 feet, respectively, in bed rock, were excavated to grade elevation 145. This work increased the flowing section of the river by 310 superficial feet. One thousand nine hundred and seventy-two cubic yards of rock (in situ) was removed to be carted away from the banks by the local parties or washed in deep water immediately below the rock reef. The cost per cubic yard, including plant charge for this work, being $1.64.

It is not considered necessary to further improve the river flow at this point, as the minimum section under the railway bridge has been increased to its economic limit, besides, the effect on flood flow of part of the improvement, performed before 1910, indicates an improvement in backwater conditions fully up to expectations at the time of initiating the work.

In a separate report, another improvement, 1¼ miles downstream, is treated.

SOUTH RIVER.

The departmental dredge *Mattawa* worked at the mouth of South river, Lake Nipissing (May 23 to August 20), making two parallel cuts 4,437 feet long, respectively.

Ten thousand four hundred and twelve yards of sand, clay and deposit (scow measure), being removed to a least depth of 11 feet, and spoiled outside the entrance of the channel in a direction to prevent silting back from prevailing winds. It is intended to make one cleaning-up cut, during the coming season, and with this, besides Lake Nipissing regulation, shortly to be obtained, there will be in the inner channel a least depth of 8½ feet and ample depth outside.

SPANISH RIVER.

Spanish river, district of Algoma, is a very important waterway flowing westerly through the district of Algoma, and is navigable for shallow draught boats from the mouth to Espanola, a distance of some 30 miles, where large pulp works have been established. The most important towns on the river are Massey, Webbwood and Spanish. Immense quantities of saw logs are brought down the river every year, and very rich mines are within easy reach of it.

On the 6th June last, authority was given to perform certain dredging, the work to be performed by the C. S. Boone Co., at the following prices per cubic yard, scow measurement:—Class 'C,' 12½ cents. The contract for this work was awarded 27th June last.

Work was commenced 18th July and closed for the season 1st November.

The work consisted in dredging two cuts, giving a width on the bottom of about 60 feet over a length of 4,400 feet to a depth of 10 feet below zero.

In doing the above work, some 95,927 cubic yards ordinary material were removed.

Total expenditure for fiscal year, 1910-11, is $10,343.75.

STANLEY ISLAND.

Stanley island is situated in the St. Lawrence, opposite Summertown, and some 8 miles below or east of Cornwall. It is a much frequented summer resort.

From September 21 to October 3, 1910, departmental dredge *No. 5* worked at Stanley island, immediately downstream of public wharf. Some 2,940 cubic yards, scow measurement, of hard clay and boulders were removed.

STURGEON FALLS.

The departmental dredge *Mattawa* worked in Lake Nipissing opposite the mouth of Sturgeon river (October 7th to November 12), improving the channel across the outer bar, by making two parellel cuts, 1,365 and 860 lineal feet, respectively.

13,375 cubic yards of sand and clay (scow measure), was removed to a grade depth of 13 feet, and spoiled outside the entrance of the channel, in a direction to prevent silting back from prevailing winds. Owing to the exposed location of this channel, much silting, however, takes place, hence the maximum depth of dredging. The channel is now considered to be in good condition, but required proper buoying.

SYDENHAM AND CHENAL ECARTE RIVERS.

Sydenham river discharges into the Chenal Ecarté river, about 2½ miles west of the town of Wallaceburg. From Wallaceburg down it is a large, deep, navigable stream, above the town it divides into two branches, north to Wilkesport 14 miles and east to Dresden, 15 miles.

Chenal Ecarté river takes its rise in the river St. Clair and flows by a tortuous route in a southeasterly direction to within a short distance of Wallaceburg where it turns, in a southerly direction, and runs into lake St. Clair. The river is now sufficiently wide and deep to permit canal sized boats with a draught of 19 feet to proceed from St. Clair river to the town of Wallaceburg. During the season of 1910, 227 vessels utilized this route, being 30 in excess of the previous year. The rivers are used particularly for the importation of beets, raw sugar and oil to the beet and sugar factory and oil refinery of Wallaceburg, as also of coal, wood, building materials, &c. The imports are rapidly increasing and figures as an important item in the large customs revenue collected at Wallaceburg and which, during the season of 1910, amounted to $231,957.64. By the improvement of the Chenal Ecarté river between Wallaceburg and the St. Clair river it is now evident that not only the amount of material imported will be largely increased, but that a large trade direct with the west, over this route will be established.

As the town of Wallaceburg is rapidly increasing in population and importance, navigation on these rivers is increasing accordingly. Population of Wallaceburg, 4,000; it is on the line of the Père Marquette railway while it is the terminus of the Chatham, Wallaceburg and Lake Erie Electric railway; there are several large and important industries established at this point, including sugar factory, glass works, oil refinery, &c., employing approximately 1,200 hands. Other new industries are now under construction.

On the 5th of May, 1910, the government dredge *Ontario* started work in this river and continued until 18th October, and consisted in the widening and deepening of channel of Sydenham river, Chenal Ecarté route, leading from Wallaceburg to river St. Clair; the three sites on which dredge worked are known as Johnson's Bend, Devils Elbow and Dark Bend. In addition, on the 5th of November, the dredge performed one day's work in deepening approach to McNarnie Brothers' gravel dock at Wallaceburg.

The work performed has already proved of great benefit. In the performance of this work some 104,300 cubic yards, scow measurement, of sand, clay and silt were removed.

Dresden.

Between the 2nd and 29th of October, 1910, inclusive, the government dredge *Ontario* widened and deepened portion of turning basin in Sydenham river, opposite easterly end of Laird's dock; dredging being performed to a depth of 12 feet below L.W.L.; 1,400 cubic yards, scow measurement, of sand being removed.

North Branch.

At the last session of parliament, the sum of $800 was voted for the removal of obstruction from the north branch of the Sydenham river between Winters and Wilkesport; work to be performed by day labour.

Operations were commenced on the 5th of September, 1910, and were continued until the 30th of November, following, when it was suspended; operations were again resumed on the 23rd and ceased on the 26th of January, 1911.

Work performed, consisted of the removal by use of a logging plant, of snags, trees and other obstructions in the river, for a total distance of 5,610 feet, leaving a draught of from 6½ to 8 feet of water available. In addition, 20 piles forming obstructions in river at Wallaceburg, were pulled and removed.

TELEGRAPH ISLAND.

Telegraph island is situated in the Bay of Quinté, about 13½ miles east of Belleville. It is a small rocky island on which a lighthouse is located. The channel is immediately to the north of the lighthouse and is comparatively narrow with a rocky bottom.

On the 26th April last, authority was given to continue the dredging by the R. Weddell Co., at the following prices per cubic yard, scow measure; rock and boulders containing over two cubic yards, $2 per yard, and ordinary material, 95 cents.

Work was commenced 28th May and completed 8th September.

The work done this season consisted in dredging a cut about 60 feet wide and 200 feet long to a depth of 14 feet below zero of gauge at Toronto. This completed the work and provided a channel 100 feet wide by 1,200 feet long to a depth of 14 feet.

During this season, some 21.575 cubic yards of rocks were removed.

Total expenditure for fiscal year, 1910-11, is $58,528.96.

THESSALON.

Thessalon, district of Algoma, is situated on the north shore of the north channel of Lake Huron. It is an important town containing several industries and a number of large saw-mills. Large quantities of lumber are shipped from this place. It is a regular port of call for all regular liners. Population, 1,400.

The services of a caretaker were continued over the materials purchased for the proposed breakwater construction.

Total expenditure for fiscal year, 1910-11, is $600.

THORNBURY.

Thornbury, Grey county, is an incorporated town of some 1,200 inhabitants, situated at the mouth of the Beaver river, which empties into the Georgian bay. It is on the Meaford branch of the Grand Trunk railway, 8 miles from Meaford and 14 miles from Collingwood.

On the 11th May last, authority was given to perform dredging, the work to be done by Weddell & Co., at the following prices per cubic yard, scow measure, ordinary material, 24 cents.

Work was commenced 3rd of October and completed 2nd November.

The work consisted in dredging in the approach to the inner harbour, between the piers, an area 100 by 180 feet, also an area in the inner harbour along the east and north sides, having a total length of 750 feet and varying in width from 25 to 100 feet. All to a depth of 18 feet.

In doing the above work, some 18,182 cubic yards ordinary material were removed.

At the last session of parliament, the sum of $5,000 was appropriated for additions and repairs to the wharf, and on the 6th June last, authority was given to proceed with the work by day labour.

Work was carried on from the 1st to 21st September intermittently, and from the 10th to 28th February, and from the 1st to 31st March.

The work consisted in the construction of a cedar crib, 100 feet by 16 feet, having 17 courses of 10-inch timber. The crib is ready to be sunk in position.

In doing the above work, some 1,350 feet, B.M., hemlock, 1,000 feet, B.M., maple, 12,770 feet, B.M., cedar and 6,788 lbs. iron were used.

Total expenditure for fiscal year, 1910-11, is $6,335.29.

TORONTO.

Toronto, York county, is a city of some 400,000 inhabitants, situated on the north shore of Lake Ontario. The harbour is formed of a circular basin, called Toronto

bay, 1¼ miles in diameter separated from the lake by a large island, formerly a peninsula, about 6 miles long, making a safe, well sheltered harbour capable of containing a large number of vessels. There are at present two entrances to the harbour, one from the east and one from the west.

At the last session of parliament, the sum of $250,000 was appropriated for harbour works, and on the 22nd April last, authority was given to expend the sum of $43,000 in the completion of repairs to 600 feet of the west pier of the eastern gap, and rebuilding the south end of the east pier of the eastern gap.

Work was commenced 1st of April and was carried on till the 31st March.

The work done this season consisted in the renewal of the superstructure from 18 feet below low water for a length of 593 feet and a width of 20 feet and for a height of 6 feet composed of concrete blocks upon which was placed reinforced mass concrete. Also a small boat landing 50 feet in length protected by 2-inch pipe railing 3 feet in height was constructed, and an ornamental steel shelter 26 feet by 8 feet placed on the pier.

A concrete headblock has been constructed on the southern pier head of the east pier of this channel 101 feet by 40 feet.

All the rods and bolts, holding the close piling to the channel face of the eastern pier, have been renewed, repaired and replaced, where gone, and tightened until in good order.

A section at the north end of the eastern pier, 32 by 34 feet has also been renewed.

A washout in the island breakwater was repaired by the driving of 52 piles and the sinking of a crib 10 by 27 feet with a concrete top. Approximately 15 carloads of stone talus were placed around this work.

In doing this work, 53,037 lbs. iron, 2,359 brls. cement, 13,340 feet, B.M., pine, 3,588 feet oak piles, 1,554 cubic yards stone 7,639 feet, B.M., oak and 1,800 feet, B.M., maple were used.

On the 16th May, 1908, a contract was awarded to R. Weddell, Esq., for the sum of $495,000 to construct a new western entrance to the harbour.

Work this season was resumed on the 24th March and carried on till 31st December when it was suspended for the season.

The work this season consisted in the construction of 18, 20 foot cribs, 100 feet long and one 2 foot crib 35 feet long, all of which were sunk in their proper positions and filled with stone making a total of 1,535 feet of 20 foot cribwork built this season. All the cribwork called for in the contract is now completed.

The dipper dredge and sand sucker have both been working all summer and the channel has been dredged to a minimum depth of 18 feet over the required area except for two cuts on north side of channel about 500 feet long and a little scraping at the east end.

All the concrete blocks for the south pier have been moulded and set in place on the cribs making 2,535 feet of blocks on each side of the pier built and set this season. The side walls and cross walls of mass concrete up to the bottom of the deck have been built on the south pier for a distance of 2,335 feet and on the north pier for a distance of 400 feet.

The departmental dredge *Quebec* worked at the eastern channel from 27th April to 30th June and made four cuts, No. 1 being 620 by 38 feet by 20 feet deep; No. 2 being 680 by 38 feet by 20 feet deep; No. 3 being 670 by 38 feet by 20 feet deep; No. 4 being 2,615 by 42 feet by 25 feet deep and No. 6 being 340 by 42 feet by 25 feet deep.

In doing the dredging, some 82,600 cubic yards other material were removed.

Total expenditure for fiscal year, 1910-11, is $143,920.14.

TREADWELL.

Treadwell, Prescott county, is situated on the east shore of the Ottawa river, 32 miles from Ottawa.

The public wharf was improved September 1st to 30th. Improvements consisted in the addition of 14 birch fenders, boxed and bolted across the waling, renewing the 2-inch flooring in the freight shed, adding two double doors and completing freight shed with ridge-roll, erecting a cattle yard fence, cleaning and painting, two coats, the structural steel in the floor system of the landing head.

Expenditure during the fiscal year, $317.20.

TWO-MILE NARROWS.

The work embraced under this heading consists in the removal of obstructions or shoals in the regular, inside, steamboat channel from Penetanguishene to Parry Sound, at Two-Mile Narrows, Five-Mile Narrows, Seven-Mile Narrows and the Devil's Elbow, all which are located within 10 miles of Parry Sound.

On the 6th July last, authority was given to perform certain dredging at these places, and on the 21st July last, a contract for same was awarded to the C. S. Boone Co., at the following prices per cubic yard, scow measurement:—Class 'A,' $2.74; 'B,' $2; and 'C,' 49 cents.

The work of drilling was commenced 26th September; dredging was begun on the 2nd November and closed for the season on the 3rd December.

During this period, some 926 cubic yards of rock were removed.

The work done, as outlined above, was at the Two-Mile Narrows.

VICTORIA HARBOUR.

Victoria Harbour, Simcoe county, is situated on an inlet of the Georgian bay, at the easterly end thereof, and is a well sheltered harbour, easily approached from the open lake. Population, 1,500. There are extensive saw-mills at this place, and it is to be the principal terminal of the Canadian Pacific railway, which has constructed a 2,000,000 bushel grain elevator and is constructing large concrete wharfs.

At the last session of parliament, the sum of $145,000 was appropriated for dredging, and on the 15th April last, authority was given to continue the work under contract with the Canadian Dredging and Construction Co., at the following prices per cubic yard, scow measure: rock and boulders containing over two cubic yards, $2.25; and ordinary material 12½ cents; bucket measure: rock and boulders containing over two cubic yards, $1.75 and ordinary material, 11 cents.

Work was resumed on the 20th April and closed for the season on the 3rd December.

The work consisted in dredging a cut 1,400 feet long by 100 feet wide in front of the elevator wharfs to a depth of 25 feet, and extending said cut along the north-easterly side of slip a distance of 2,600 feet and a width of 250 feet to a depth of 25 feet for the crib seats of the wharfs in front of the proposed flour sheds of the Canadian Pacific Railway elevator, 1,400 feet long by 300 feet wide and in depth varying from 20 to 25 feet, also a cut from the south end of the elevator wharf, at an angle of about 45 degrees across the slip to the flour sheds, a distance of 700 feet with a width of 125 feet and a depth varying from 20 to 25 feet.

WAUBAUSHENE.

Waubaushene, Fesserton and Coldwater, Simcoe county, with, respectively, 1,500, 1,000 and 1,500 inhabitants, are all situated on Matchedash bay, an arm of the Georgian bay, at the southerly end thereof.

On the 16th May last, authority was given to continue dredging under contract with the Penetanguishene Dredging Co., at the following prices per cubic yard, scow measure: rock, $3 per cubic yard; other materials, 15 cents; bucket measure: rock, $3.25 and other materials, 14 cents.

Work was commenced 18th May and carried on till 29th November.

There are really two distinct works covered by this report, viz.:—from Waubaushene to Fesserton and from Fesserton to Coldwater.

The work at Waubaushene consisted in the blasting and removing of a rocky shoal almost opposite Hazel street, 225 feet long by 40 feet wide; also a rocky shoal in the channel 20 by 50 feet; also some dredging to widen the channel extending easterly from the aforesaid shoal along the north side of the channel for a distance of 300 feet, all to a depth of 10 feet at present. The drilling of a cut through a rocky bar, in the channel opposite the mill, some 70 by 25 feet, was performed, but no dredging has yet been done at this place.

The work from Fesserton to Coldwater was continued and a cut made, from the turning basin at Fesserton, easterly 200 feet in length by 22 feet in width, also a second cut some 800 feet easterly from the cut just mentioned, 500 feet in length by 22 feet in width, also a cut at the mouth of the Coldwater river, 2,600 feet in length by 22 feet in width; all to a depth of 10 feet.

In doing the work, from Fesserton to Coldwater, some 65,625 cubic yards ordinary material were removed, also 3 cubic yards of rock and some 294 yards of other materials were overcast.

In doing the work, from Waubaushene to Fesserton, some 2,305 cubic yards of rock and 3,800 cubic yards other materials were removed.

Total expenditure for fiscal year, 1910-11, is $19,109.41.

WELLAND RIVER.

Welland river runs through Welland county emptying into the Niagara river, about 3 miles above Niagara Falls.

On the 10th August last, authority was given to perform certain dredging, the work to be done by the General Construction and Dredging Company, at the following prices per cubic yard, scow measurement: class 'C', 15½ cents under contract dated 20th September, 1910.

However, before the work was begun, the contract was transferred to Mr. John E. Russell on the same terms.

Work was commenced 25th August and completed 5th November.

The work consisted in the excavation of three cuts each 30 feet wide, two being 1,302 feet in length and the other 225 feet in length, all to a depth of 12 feet below zero. The two cuts 1,302 feet in length were afterwards extended out into deep water in the river.

In doing the above work, some 40,000 cubic yards other materials were removed.

Total expenditure for fiscal year, 1910-11, is $6,410.01.

WHITBY.

Whitby, Ontario county, is situated on the north shore of Lake Ontario, 30 miles east of Toronto. Population 2,300.

Up to the 22nd March, this harbour was owned and controlled by the Port Whitby Harbour Company, but on that date it was purchased by the government for the sum of $20,000.

The breakwater is 3,042 feet in length and the two protection piers at the entrance are, one 620 feet long and the other 394 feet long.

On the 25th April last, authority was given to have certain dredging performed by Mr. W. E. Phin, at the following prices per cubic yard, scow measure: class 'A', $2.75; 'B,' $1 and 'C,' 18 cents.

Work was commenced 6th June and completed 16th August.

The work consisted in dredging an area 1,000 by 250 feet also 100 by 150 feet to 14 feet below zero.

In doing the above work, some 77,256 cubic yards other materials were removed. Total expenditure for fiscal year, 1910-11, is $17,533.04.

WIARTON.

Wiarton, Bruce county, is a prosperous town at the head of Colpoy's bay, about 32 miles west of Owen Sound. It is the terminus of the Georgian Bay and Lake Erie Branch of the Grand Trunk railway.

At the last session of parliament, the sum of $15,000 was appropriated for the construction of a breakwater.

Contract plans and specifications for same were duly prepared, forwarded to Ottawa and tenders were called and the work awarded to Messrs. Kastner & Porter, of Wiarton, for the sum of $13,990.

Work was commenced 20th February.

The work performed, up to date, consists in the framing of timber for the substructure.

Total expenditure for fiscal year, 1910-11, is $3,941.49.

WINGFIELD BASIN.

Wingfield basin, Bruce county, is situated on the northeast end of Bruce Peninsula, on the west side of Georgian bay, a short distance northwest of Cabot's Head, about 41 miles north of Wiarton, and 18 miles from Tobermoray. It is within 1½ miles of the course of all vessels sailing from ports on the south and west ends of Georgian bay to all ports on Lakes Huron and Superior. The basin itself is nearly circular and is a natural, well sheltered harbour about 1¼ miles in diameter with a depth of from 12 to 22 feet over mud and rock, except at the southeast end where it is shoal for a distance of 500 to 600 feet out from shore. The basin lies between Boulder and Middle Bluffs, these being two of the cliffs forming what is known as Cabot's Head.

On the 26th April last, authority was given to continue the dredging under the contract with the C. S. Boone Company, at the following prices per cubic yard, rock and boulders containing over 2 cubic yards, $3, and ordinary material, 78 cents.

Work was commenced 27th June and completed 23rd July.

The work this season, consisted in the removal of 4,664 cubic yards of rock and was taken from the channel where the bottom was found to be above grade, thus completing the channel from the lake into the basin 100 feet wide by about 1,000 feet long with a minimum depth of 16 feet and rendering available for refuge, one of the finest natural harbours on the Georgian bay. All that is now required is range lights to be placed in axis of channel to guide vessels into the harbour in the darkness.

Total expenditure for fiscal year, 1910-11, is $14,079.25.

PROVINCE OF MANITOBA.

ARNES WHARF.

On the 24th day of August, an examiantion of Arnes wharf was made.

The wharf is standing in good condition. A few piles at the outer end have been pulled off slightly, apparently by the ice, but not sufficient to require immediate attention.

ASSINIBOINE RIVER.

An examination was made at the mouth of this river, for the purpose of ascertaining if it were feasible to erect a temporary weir three feet high, for the purpose of raising the water in the river during the winter months. The Winnipeg Electric

Railway Company take the water, that is used in operating their power plant, from the Assiniboine, and on account of the water being three feet below the usual winter level, to insure a safe water supply, asked to be allowed to put in a temporary weir, to be removed before the ice goes out, in February or March, 1911.

BALSAM BAY.

An examination of this place was made for the purpose of selecting a site for a proposed wharf, and it was found that the best location would be on the southeast quarter of section 32, tp. 17, range 7, east. The shore of the lake is covered with boulders and the banks range from 12 to 35 feet in height. A wharf would naturally be exposed to all winds, except an easterly one, and could only be used in fair weather.

BLACK RIVER.

An examination was made at this place October 13th, and soundings taken for the purpose of ascertaining the quantity and kind of material that would have to be dredged through a bar that extended across the river, a short distance up stream from its mouth. The examination showed that the material to be dredged was soft mud, and the present depth of water was 7 feet, with gauge at 2·8, and to dredge a channel to a depth of 9 feet, 500 feet long by 40 feet wide, would require the removal of 1,500 cubic yards of dredged material.

BROKENHEAD.

An examination and exploration from Maria creek, where it empties into the Red river just north of the Forks, through the marshes to Brokenhead river, was made with the object of dredging a shallow channel for boats of light draught. By following creeks that run in an easterly direction, and dredging through marshes, a practicable channel was found. The proposed channel will be 40 feet wide and 4 feet deep when the water is at 2·0 feet on the gauge, a low water mark seldom reached.

CHIPPEWA CREEK.

A petition from a large number of people living in the vicinity of Lilly bay, section 1, township 21, range 7 west, on the east shore of Lake Manitoba, was received asking that Chippewa creek which enters the bay at the northern part, be improved so that lake steamers could land and receive freight.

The entrance is from a bay well protected from all except southerly storms, by Long Point. Heretofore steamers could not land on account of an impassable slough. The farms for several miles from the mouth of the creek are occupied and post offices are opened in the district. A large swamp has been drained by the farmers and a large amount of land reclaimed for hay. A sawmill is in operation, getting out material for fish boxes. No doubt a large amount of cordwood will be shipped as soon as there is a shipping point. The nearest railway is 12 miles distant.

It being apparent that a necessity existed for this improvement, dredge *Manitoba* was placed on the work September 17, and stopped work October 25, the season closing at that time.

As it was necessary to provide shelter for the dredge, work was started inside the bar in the bay. The portion dredged extends from the south side line of the road 3,938 lineal feet. The cut is 40 feet wide and depth of water 7 feet below zero of the gauge. About 1,200 lineal feet of the outer portion in the bay remains to be done.

The total quantity removed was 18,221 cubic yards of soft mud and clay, at a cost of $1,692.88 or 9·27 cents per cubic yard, adding 3·0 cents per cubic yard for dredge repairs makes a total cost of $2,640.01.

EINARSSON'S

Einarsson's, Dauphin county, is a distributing point for the Icelandic settlement on the east side of The Narrows, Lake Manitoba.

During the fall of 1907, a channel through a bar in front of the wharf, and a berth at the wharf were dredged. Representations having been made, asking that the old cut be extended, the dredge was accordingly placed on the work September 13, and finished September 17th.

A total of 2,138 cubic yards of clay and stones was removed, at a cost of $83.76, being at the rate of 3·9 cents per cubic yard. To this add 3·0 cents per cubic yard for the dredge vessel repairs. This very low rate is due to the small loss of time in towing from Wilson's on the west side of the Narrows and to favourable weather conditions, while dredging.

GRAND MARAIS.

A survey of the north harbour of Grand Marais, which is situated on the east side of Lake Winnipeg, township 18, range 7, east, showed that the old channel had filled in, and to make future dredging of a permanent nature, protection of some kind would require to be made. A channel 2,000 feet long by 40 feet wide and 5 feet below the zero of water gauge, would be necessary to render this harbour available.

GYPSUMVILLE.

During the summer and fall of 1907, a channel to the Manitoba Gypsum Company's dock was dredged. Some filling in had occurred rendering it almost impossible for the larger boats to use the dock during ordinary low water.

Dredge *Manitoba* left The Narrows for Gypsumville on August 18th and finished the work on August 22nd. The dredging consisted principally in cleaning out and deepening the channel at the dock and enlarging the turning basin.

A total of 665 cubic yards of soft mud and clay was removed. The expenditure amounted to $137.81, being at the rate of 20·72 cents per cubic yard. To this, add 3·0 cents per cubic yard for dredge vessel repairs.

HIGH BLUFF.

An examination was made of an old creek bed entering the Assiniboine river, from the south side, at High Bluff. This creek had been filled in about 1901 by the provincial government, but of late years the freshets, aided by well directed efforts of parties interested, have washed the bank out, causing more or less flooding of the adjoining lands. No culvert had been provided in the old embankment for the water to drain off, when the water in the Assiniboine river went down.

What is required is an embankment across the creek and a culvert with regulating gates to keep the river out at high water, and at low water the back pressure will open and drain the land.

HNAUSA WHARF.

Repairs were made to Hnausa wharf, Selkirk county, consisting of replacing stringers, renewing the planking, and putting in fourteen new mooring posts, at a cost of $956.96.

ICELANDIC RIVER.

A survey of the channel at Icelandic river, Selkirk county, on the ice last April, showed the channel for the first 3,000 feet to be in a fair alignment, with an average width of 40 feet, and a depth of 2.2 feet below zero on gauge. For the next 2,300 feet the average width was 60 feet, and depth varying from 3.3 feet to 5.5 feet.

It was decided to improve the channel (representations having been made that steamers grounded going in and out) and dredge *Assiniboine,* with pile driver was towed from the mouth of the Red river to Icelandic river, and commenced dredging July 27, remaining there (but seriously delayed by winds) until August 24, when the dredge was ordered to Washow river, in tow of tug *Victoria.* The dredge returned to Icelandic river on September 7 and worked until October 28, when the dredge, with outfit, was towed to winter quarters at Selkirk, by tug *Victoria.*

Twenty-one thousand nine hundred and fifty-one cubic yards of clay and sand were removed, at a total cost of $3,601,78, being at the rate of 16·4 cents per cubic yard. To this add 3·0 cents per cubic yard for dredge vessel repairs.

KENORA.

An examination was made on March 17, for the purpose of ascertaining the best location for a dock, for the accommodation of motor boats, Kenora being a summer resort, and there are about 200 motor boats in use in the season.

The investigation showed that what was really wanted, was a crib retaining wall, parallel to the Canadian Pacific railway, built across a small bay. This would give only one side for a wharf and would cost from $15,000 to $20,000. A suitable place for a dock to accommodate the greater number of boats would be on property owned by the town. This would be a short distance beyond the site of the crib retaining wall, and would cost about $3,300.

MOSSY RIVER.

The work of fitting up dredge *Dauphin* for the season began April 5, and the first dredging was done April 14.

Last season's work ended at Lowery's rapids. At the opening of this season's work, it was deemed advisable to widen the cut, and accordingly the dredge was started at Station 197-30. The work was finished on November 4 at Station 279. Nearly the whole distance passed over this year had to be dredged. At Teddy's rapids, there are several sharp bends, and it was found advisable to make a dredge cut through two of these, opposite Station 216 and Station 226.

The total distance dredged was 8,700 lineal feet; width of cut 40 feet, and depth below lowest water, 4 feet. The material removed consisted of clay, sand, gravel and boulders; total, 24,089 cubic yards. The expenditure amounted to $3,686.99, being 15·3 cents per cubic yard. To this add 3 cents per cubic yard for dredge vessel repairs.

The water was rapid in the greater part of the river passed over during the season.

Owing to low water in Lake Dauphin, which feeds Mossy river (particularly during the fall) great difficulty was experienced in handling the dredge. On October 7, the work of passing the dredge through Cameron's bridge began. A pile driver was borrowed. It was necessary to erect false works to carry the pile driver and replace the piles.

The dredge was laid up for the winter at a point below Cameron's bridge.

OAK POINT.

This harbour was dredged during the fall of 1909. Work was started at the six-foot contour line in the lake, and, as shelter for the fleet could only be provided by dredging to the slough inside the shore line, the material was all cast to the sides.

This embankment was removed during the present season. The turning basin at the head of the harbour was also enlarged. A depth of 6 feet of water was provided. Nearly all the material was scowed and dumped about half a mile out into the lake.

The material removed was 6,058 cubic yards of sand and clay. The expenditure was $1,430.36, amounting to 23·61 cents per cubic yard. To this add 3 cents per cubic yard for dredge vessel repairs.

No protection work has been provided at the entrance of this harbour, as the filling in may be small and a little dredging, each spring, will be sufficient to keep the channel cleaned out to the required depth.

RED RIVER.

The bar at the mouth of the east channel, Red river, having more or less filled in by the wind and movement of the ice in the spring, it was decided to deepen and straighten the channel where required, and the dredge *Assiniboine,* after a thorough outfitting, left Selkirk, with pile driver and tug *Victoria* to begin the season's dredging, reaching the mouth of the Red river May 2, but very little work was done until June 6th, as the winds were so heavy that the dredge could not work; the site of dredging being exposed to all winds. The channel extends 2¼ miles into Lake Winnipeg. Of this distance, 2,245 feet have been dredged 75 feet wide and 7 feet deep. It was to keep this channel open that the present dredging was done.

Quantity of cubic yards of sand removed, 13,720, at a cost of $3,330.62, being 24·27 cents per cubic yard. To this add 3 cents per cubic yard for dredge vessel repairs. Dredging was completed July 16.

This work, for the protection of the centre channel (new cut) was begun in March, so as to take advantage of the ice for driving piles. The work consisted of two rows of piles, 5 feet apart, running parallel to the channel and beginning at station 13-00, extending in a northerly direction. The piles on the two lines were driven 4 feet centre to centre and fastened together by 4 by 8-inch braces. On the front of the piles, two wales were placed to serve as guides for the sheet piling, which consisted of a layer of one-inch boards and three-inch plank on the outside, breaking joints so as to keep the sand from sifting through. This protection was built in two sections, one on each side of the channel; the westerly one consisting of 228 piles, and is 420 feet long; the easterly one contains 266 piles and is 500 feet long. These sections are 300 feet apart, to allow for a flat slope after the channel is dredged. A cluster of piles was driven at the north end of each section to protect it from the action of the ice jams, which frequently occur.

It is proposed to continue the protection work southerly, on the west side of the channel, towards the shore.

The amount of work done, is as follows:—

Four hundred and ninety-four piles—10,331 lineal feet piles driven; 34,000 feet, B.M., timber built in place, making 920 lineal feet of protection, costing $6,066.88.

Tamarack timber on hand, 25,149 feet, B.M.; tamarack piles on hand, 4,767 lineal feet.

A larger section of the protection work would have been built, before the ice went out, but the contractor, who agreed to furnish piles, failed to deliver them, and a second contractor likewise defaulted, so that it was very difficult to get them.

The expenditure for the fiscal year, 1910-11, was $9,821.86.

ST. ANDREWS LOCK TO SELKIRK.

The continuation of the dredging at the lower entrance of the St. Andrews lock was undertaken by the new dredge *Winnipeg,* built for that purpose, and was towed to Lockport by the tug *Lisgar,* starting work June 22. After stripping the rock of stones and boulders, the full width of the 200-foot channel, an attempt was made to dredge the limestone rock, but poor success was met with, and the work abandoned after some 600 cubic yards of solid rock were taken out.

On August 31, the dredge was moved down the Red river half a mile and took out three cuts, widening the channel to 200 feet and parallel to the work done in 1909. This work was all stones, boulders and gravel. Total number of cubic yards

removed, 19,870, of which 600 cubic yards were solid rock, at a cost of $6,436.59, or 31·44 cents per cubic yard; to which add 3 cents per cubic yard for dredge vessel repairs.

Dredging for the season was suspended October 23rd, and dredge towed to the Selkirk slough.

Lister's Rapids.

Lister's rapids, until St. Andrew's lock and dam were built, were the greatest obstruction in the Red river, between Winnipeg and the lock. When the water was raised in the dam to the elevation of 703·00 the greatest depth of water was 9 feet and in places, especially at the head of the rapids, 8 feet; but in sweeping the channel boulders were found in 7·6 feet of water.

A survey of the rapids was made during the winter, and work of removing the boulders will be proceeded with, as early as possible and a channel 9 feet deep laid out.

West Channel.

An examination was made of the west channel of the Red river, October 24th.

This channel was used for a number of years, and a great deal of dredging was done to keep it open, but a flood and heavy ice flow in 1893 closed it, opening the east channel.

Where the west channel leaves the main river, a bar extends across the river, and is about 500 feet wide, with 5 feet of water, gauge at 2·8. From there to the mouth of the river 4½ miles, the water varies from 8 to 15 feet in depth. The bar at the mouth begins at a line of the shore and extends out nearly a mile, where a depth of 7·2 feet is found. The bar is all sand, which seems to be in motion, depending upon the way the wind blows. A protection of some kind would be required.

Without a survey on the ice and soundings taken, it is impossible to give more than a brief report.

ST. ANDREWS LOCK AND DAM.

The contracts for the work having been practically completed, the Premier, the Right Honourable Sir Wilfrid Laurier, G.C.M.G., P.C., formally opened the lock July 14th, 1910.

The following is a summary of the different classes of work performed, since April:

1. In April, the lock was unwatered so that the valves might be placed, the gates mitred, the screens for the upper wells put in position, and the lock finally made ready for operation. The rack arms for operating the gates were also put in place, and all other details not included in the contract were finished. The cost of this work was $2,100.17.

2. Early in May, a boom was constructed to catch the flotsam above the dam, at a cost of $351.55.

3. On May 17th, the general cleaning up of the government property was commenced. This work included planting trees, cleaning of all surface stone, digging surface drains, repairing rip-rap, erecting iron fence on west side of the river and wire fence on east side, building stairway in 3 to 1 slope, back of lock, and trimming slopes preparatory to sodding. The expenditure for this item was $4,395.87.

4. On June 1st, Messrs. Quinlan & Robertson began, on a cost plus 15 per cent basis, to excavate the earth which had slipped at the north end of the lock and also to put stone drains in the slope. The total quantity of earth removed was 3,220 cubic yards, and the quantity of excavation for drains and stone placed was 1,092 cubic yards. The stone for these drains was obtained from the excavation made in the lower entrance by the dredge *Winnipeg*. The cost of this work was $4,449.23.

5. Fourteen mooring posts were placed behind the upper entrance piers, at a cost of $555.30.

6. One thousand two hundred and twenty-five cubic yards of gravel and surfacing were placed behind the entrance piers and around repair shop, under contract price, at a cost of $3,062.50.

7. One thousand four hundred and eighty cubic yards of earth were excavated from around repair shop, at contract price, or $740.

8. In September and October, 13,035·2 square yards of sod were laid, at an expenditure of $2,737.66.

On the 31st October, notice having been given that the dam would be raised and navigation closed, at the lock, curtains and frames were raised. In three days' time the water was at its winter level. The cranes for lifting the curtains and frames worked satisfactorily. As soon as the water was down, work was commenced on the construction of a coffer dam, to be used in the lock, so that it could be unwatered, the valve examined and cleaned.

9. In November, a lock house costing $1,723.90 and store house costing $1,639.50 were built. Some drains were put in, slopes trimmed, stone for rip-rap collected and cranes enclosed.

10. In December, January and February, enclosures for cranes completed, stone for rip-rap purchased, &c.

The expenditure for the fiscal year, 1910-11, was $65,175.29.

Valves.

The valves operating the lock were completed, shipped and erected in position in the lock early in the year and worked in a most satisfactory manner; the lock opened for traffic in June.

The valves are of cast iron and bronze, are circular in form, having a diameter of 77 inches over all, and close a horizontal circular opening, or well, 63 inches in diameter, somewhat in the nature of an inverted teacup. They weigh 3,330 lbs. each and are partly suspended by chains passing over pocket wheels at the coping level to counter-weights in a vertical well immediately above the valve chamber.

They are self-operating by changing the pressure head on the inside of the valve case by means of a small pilot valve, which connects the two levels, operated from the coping by a small hand wheel, it being only necessary to move the pilot valve ¾ inch to cause the main valve to raise its full height, thereby allowing full flow through the wall culverts. They are the largest valves of this type in the world.

The difference of level in the lock is generally 18 feet, the culvert area is 4½ feet by 6 feet and the lock chamber is 46 feet by 215 feet; change of level is effected in six minutes without surge in the chamber.

SEINE RIVER.

A survey and examination for the widening of the Seine river, in the county of Provencher, was made in July. This is a drainage question entirely, and is not in any sense a widening of the Seine river. A ditch was cut by the provincial government in 1880 and widened in 1885. The length of ditch is 2½ miles, averaging 18 feet wide at water level. The lower half of the ditch has caved in, reducing the water way to 5 feet in width. If this portion was cleaned out, it would be of great advantage to the adjoining land.

SELKIRK SLOUGH.

This slough has been the winter quarters for all steamers on Lake Winnipeg, and the shipyard belonging to the department is situated at the head of it. As the

dredging fleet is increasing rapidly, more room is required, and the dredge *Winnipeg* in trying out the machinery, removed 1,300 cubic yards of clay, before towing up to St. Andrews lock.

When the dredge returned to Selkirk on October 23, prior to going into winter quarters, 4,140 cubic yards were dredged, making a total of 5,440 cubic yards, costing $2,282.98, being 41·96 cents per cubic yard. To this add 3 cents per cubic yard for dredge vessel repairs.

The high cost of dredging was caused by the trying out of the new dredge *Winnipeg,* prior to June 22, numerous breakdowns occurring before it was ready to send out to work at the St. Andrews lock.

SNAKE ISLAND.

The entrance to the harbour at the government fish hatchery having become filled by sand and gravel, the dredge *Winnipegosis* was sent there September 26, 1910. The entrance was widened and deepened to a depth of 6 feet below zero of the gauge.

As stormy weather delayed this work, and a request had been received, asking that a channel be dredged through the slough from the entrance to a point near the fish hatchery, to enable a small steamer, serving the hatchery, to reach a suitable place to deliver freight, it was decided that the work should be done. The dredge was accordingly directed to work on this cut during bad weather.

After a turning basin was dredged inside the slough, a cut 200 feet long, 30 feet wide and 6 feet below zero was dredged towards the hatchery. At the inner end of the slough, another cut in line with the above was dredged; length 430 feet, width 30 feet, and 6 feet below zero. The quantity of material dredged was 3,201 cubic yards, consisting of hard mud, boulders and gravel, at a cost of $424.47, being 13·2 cents per cubic yard. To this add 3 cents per cubic yard for dredge vessel repairs. This work was finished October 21.

VICTORIA BEACH.

An examination of Victoria beach, on the east shore of Lake Winnipeg, for the purpose of ascertaining the possibility of building a breakwater at that point, and making the beach a harbour of refuge.

To make a safe harbour, it would be necessary to build a breakwater and wharf extending 350 feet, in a southerly direction from a point of land on the southwest quarter of section 11, tp. 20, range 7, east. Dredging would be required to give a depth of 7 feet along the inside of the breakwater. To build a suitable breakwater would necessitate the expenditure of $12,000.

WASHOW RIVER.

Washow river enters Lake Winnipeg, in section 29, township 25, range 4, east p.m.

The dredge *Assiniboine,* with tug *Victoria* and pile driver, left Icelandic river August 24, for the above river, and arrived there on the 26th, drove the necessary piles and started dredging on the 27th. The dredging was principally straightening the channel, as the bends in the river were very sharp, and it was impossible to get a tow around them without grounding.

There is quite a business done in ties and lumber at this place, a sawmill working practically all summer.

Seven thousand six hundred and sixty-six cubic yards of soft mud were removed, at a cost of $640.10, being 8·3 cents per cubic yard. To this, add 3 cents per cubic yard for dredge vessel repairs.

Dredging was completed on September 7, and the dredge returned to Icelandic river.

WHITEMUD RIVER.

The Whitemud river forms the only harbour of refuge at the southern end of Lake Manitoba, and carries a large traffic to and from Totogan, a railway terminus, about four miles from the mouth. The channel, between the river and deep water in the lake, collects drift sand from the bottom of the lake.

An examination of the channel was made early in May. The minimum depth of water was 7 feet below zero of the gauge, but the channel was narrow in places.

The dredge *Manitoba* was placed at work on July 7, and continued to August 9. During this time, unusually strong winds from the north prevailed, which, with a further loss of time caused by going to St. Laurent for fuel, and some needed repairs, left but eight days during which the dredge moved out to work, and the total worked was three days and one half hour. The material removed, consisting of sand and clay, amounted to 1,445 cubic yards.

The expenditure, which includes four days time fitting out the dredge early in May, amounts to $904.50, which equals 62·5 cents per cubic yard. Add to this, 3 cents per cubic yard for dredge vessel repairs. This price is very excessive and was caused solely by the unusual conditions prevailing.

WILSON'S.

Numerous request for dredging at a point on the west side of the Narrows, Lake Manitoba, having been received, and after careful inquiry, establishing the fact that Wilson's is the distributing point for a large district, now being rapidly homesteaded, and that the nearest railway is distant 40 miles, it was decided to dredge a channel to enable the larger boats to land and receive there.

The wharf is 140 feet long, and 10 feet wide. A depth of 6 to 7 feet of water was provided opposite the wharf. The berth was dredged 35 feet wide. From the end of the wharf, a channel 600 feet long was dredged to a contour line of 7 feet in the lake. This channel has a width of 65 feet and a depth of 8 feet.

The dredge *Manitoba* worked here from August 10 to the 17th. It was then taken to Gypsumville to do some urgent work. It returned to the Narrows August 23, and worked until September 12.

The chief delays in this work were caused by wind, 9·3 days, and towing to the Narrows 3·2 days. The total quantity of clay removed amounted to 4,550 cubic yards. The expenditure was $831.62, being at the rate of 18·2 cents per cubic yard. To this, add 3 cents per cubic yard for dredge vessel repairs.

Steamers using the channel had much difficulty in backing out of the channel, on account of their lack of steering qualities, when backing, and to the strong current, either to the north or south, usually running by the Narrows. It is, therefore, deemed advisable to provide a turning basin at the inner end.

WINNIPEG BEACH.

A contract for the construction of this pier was let on the 24th March, 1910, to John Lowry, of Ottawa, but he failed to commence work and gave it up. Instructions were issued July 25th to build 200 feet from the shore, and work started, but stopped in August after an expenditure of $939.68 for labour and $1,947.24 for material. Tenders were again called for, and John Gunn & Sons, of Winnipeg, received the contract for $19,192, to be completed by the 1st July, 1911. Pile driving, on the ice, started February 9, and was practically finished by March 25.

The following work has been done to March 23:—

Piles driven, 17,828 lineal feet.
Tamarack timber, in place, 18,700 feet, B.M.
Sheet piling driven, 16,960 feet, B.M.

Materials delivered on site of works:—

Timber, 59,697 feet, B.M.
Iron, 22,990 lbs.
Stone, 524 cubic yards.

There should be no difficulty in finishing the contract within date fixed upon, 1st July, 1911.

The expenditure for fiscal year, 1910-11, was $9,229.18.

WINNIPEGOSIS.

During the fall of 1909, it was found that boats and lumber rafts were having trouble navigating the channel between deep water in Lake Winnipegosis and the town of Winnipegosis, near the mouth of Mossy river. During March, 1910, a careful survey of the channel was made on the ice, and it was found that considerable sand had drifted into the channel from the bottom of the lake.

The old dredge *Priestman* on Lake Winnipegosis, belonging to the department, had not been used for some time. The hull was in good condition, but the machinery was of an old type, worn out and useless. It was therefore decided to place the machinery taken from dredge *Crane* on to the *Priestman* barge. The deck-house was changed to suit the new conditions. A new 'A' frame, boom, anchors and slides were provided. The dredge thus equipped was renamed *Winnipegosis*.

The small tug formerly serving dredge *Priestman* and used between Selkirk and St. Andrews lock during 1909, was fitted up and sent back to Winnipegosis.

The greater part of the proposed dredging was exposed to lake storms, and it was necessary to scow the material away. The old scow that formerly served dredge *Priestman* could not be repaired, therefore it was necessary to build a new scow.

The dredge was ready before the scow was finished, and as steamers were having trouble on a bar at the mouth of the river, the dredge was placed at work there on May 16 and continued until June 7. This work consisted in deepening the channel and cutting the point off at the bend. The dredge crew were then put to work on the scow. It was finished and launched June 20. Owing to some preparatory work and bad weather, dredging was not resumed until the 23rd June. It was continued up to the 24th September, removing 14,339 cubic yards of hard mud, sand and boulders. The dredge was then towed to Snake island, returning to Winnipegosis October 24th, when 633 cubic yards of mud and sand were removed, at the dredge basin preparatory to laying up the dredge, October 26. The total number of cubic yards removed in the two operations was 14,972, and cost $5,452.28, or 36·4 cents per cubic yard. To this may be added 3·0 cents per cubic yard for dredge vessel repairs.

The reason of this excessive cost is that the rebuilding of the dredge *Priestman*, costing $845.48, a new orange peel bucket, $1,129.50, and dredge crew's time pushing work on scow, $285, making a total of $2,257.98 for repairs and construction, was charged against 'Dredging, Manitoba.'

The channel was widened by two cuts being taken off the north side, and one cut off the south side throughout the whole length. It was dredged to a depth of 8 feet below zero of the gauge.

ALBERTA AND SASKATCHEWAN.

ATHABASKA RIVER—GRAND RAPIDS IMPROVEMENTS.

Grand Rapids are situated on the Athabaska river, 175 miles below Athabaska Landing and 275 miles from Edmonton, the nearest railway point.

All supplies carried north to the district of the Athabaska, Great Slave and Great Bear lakes and the McKenzie river are carried down the Athabaska river in

scows. At Grand Rapids the river is divided by an island and has a drop of about 50 feet in less than a mile, and here all the supplies have to be unloaded and portaged a mile down river while the scows run the rapids empty.

It was considered possible by removing the boulders from the channel, used for the scows, to carry freight down without unloading. Work was, according, started during the fiscal year, 1910-11, blasting the rocks from the rapids in an endeavour to improve the navigation. Considering the difficulties encountered in having especially high water, late in the season, and the work being very difficult in the rapids, good progress was made, and a large portion of the channel was improved. The amount of rock blasted is impossible to estimate, as a large portion of the work was done from the ice and the measurement of the rocks could not be taken. The river pilots claim a great improvement in the rapids this spring, but a large number of the rocks still need to be removed. Work was commenced on August 15, gathering a party together, and the men were dismissed on December 26.

The total expenditure during the season amounted to $10,806.58.

CRAVEN DAM.

This dam is situated below the junction of the Qu'Appelle river and Last Mountain lake outlet in the constituency of Regina.

Last November, when dredging operations ceased at the foot of Last Mountain lake, a portion of the dredge crew was retained, and an addition of twenty feet was placed on the fishway at the dam, thus extending it to the bottom of the Qu'Appelle river. Previously, in periods of low water, this fishway did not reach to the water level, and as a consequence did not answer its purpose. Now, however, fish can reach the water above or below the dam at any time, except at extreme low water.

Work started November 10, ceased November 15.

Total expenditure for this work, $86.43.

LAST MOUNTAIN LAKE.

This work is situated in the constituency of Regina. The plant consist of one bottom dump dipper dredge, with a capacity of one cubic yard; dimensions, 60 by 22 feet by 4 feet 6 inches; two scows each having a measured capacity of 32 cubic yards, dimensions over all 54 by 13 feet by 5 feet, 6 inches, together with tug for towing purposes.

The work consisted of dredging a channel from the foot of the lake to a point in the lake where the water is deep enough for vessels to enter the channel. There was also work done in the harbour or turning basin at McKillop's Landing, at the lower end of the channel. The work here consisted of excavating with the dredge and transporting the material by tug to the lake with the two barges which formed part of the equipment.

Excavation of Channel and Turning Basin.

The work in the channel was done by the dredge, simply casting the material excavated to either side in order to reach deep water at the earliest possible moment. This was done for the purpose of allowing lake vessels to enter and to permit of the tug towing material out from the excavated channel. The width of the cut thus made varied from 35 to 40 feet at water level, and was approximately 7 feet in depth. This cut proved too narrow as well as shallow for towing purposes, particularly as the sides of the cut showed a tendency to fall in and the scow or tug to scrape bottom. The season of 1910 also proved an unusually dry one, and the lake fell much below its usual level. These circumstances tended to lessen the amount of material which was removed at this place.

Dredging started May 11 and stopped operations November 1, 1910.

Width of cut at water level, 35 to 40 feet, and depth 7 feet; length of cut from harbour as laid out to the lower end of cut, 4,700 feet; length of turning basin as laid out, 900 feet, and width, 125 feet, and average depth of water as excavated in turning basin, 7 feet.

	Cubic yards.
Amount of material excavated in cut	22,466
Amount of material excavated in turning basin	7,970
Total material excavated during the season	30,436

Total cost of removal, $8,836.32; cost per cubic yard, 29·04 cents.

A large part of the material excavated, both in cut and turning basin, consisted of gumbo and was difficult to dump with the dipper, causing considerable delay.

The total expenditure for the fiscal year, 1910-11, was $9.502.75.

Last Mountain Lake outlet diversion.

This diversion is situated on the Last Mountain lake outlet, in the constituency of Regina, at a point half way between Last Mountain lake and the village of Craven.

In the summer of 1910, the Canadian Pacific railway blocked the outlet in two places with their railway grade. At about this time they dug a small diversion which averaged 25 feet wide and 850 feet long in order to let the water of the outlet through but did not make a channel nearly as large in dimensions as the channel they blocked. It was agreed by the company, however, that a diversion of the same width and depth as the one blocked should be taken out during the winter when the ground, which was water soaked, would be frozen, and on that account more easily removed. Accordingly on or about December 15th, 1910, a new channel was started with a 20 foot bottom. This left a ridge of 10 feet between the two excavations, the intention being to eventually remove this ridge, thus making one large diversion. This, however, was not done and the existing conditions do not allow of anything approaching the depth and width of the old channel. Work was suspended by the company on the 18th of March, 1911, owing to the fact that water came in and flooded out the workmen. It has been decided by the department that the railway company will be compelled to complete this diversion, leaving a channel of the same dimensions as that portion of the outlet which they blocked with the railway grade.

LESSER SLAVE RIVER.

The Lesser Slave river drains Lesser Slave lake, flowing into the Athabaska river about 90 miles northwest of Athabaska Landing. At present this is the line of travel most used for entrance to the Peace River valley.

The river has a long series of shallow rapids extending for about 20 miles above the mouth, with a total drop of about 80 feet. The strongest rapid is 13 miles above the mouth where the water drops 13 feet in one mile. It was considered possible by dredging out the shoals and concentrating the water in a narrower channel by means of rowing dams, to so improve the rapids that steamers of light draught might be roped up without unloading. At present, all supplies taken in during the summer season have to be portaged for 16 miles around these rapids. With this end in view, work was started during the fiscal year ending March 31, 1908, and continued during the seasons of 1908-9-10.

On March 31, 1910, the construction of the wing dams as proposed, 63 in number, had been about completed; a small orange peel dredge had been constructed and considerable dredging done. The total expenditure at that date was $63,348.23. Of which it was necessary to pay $2,339.05 from the appropriation for 1910-11.

During the season 1910-11, the dredging work was continued and about 8,000 cubic yards of material removed. Nine of the wing dams were repaired and reballasted, and some boulders were removed from the channel.

Since their completion, however, several of the wing dams have been carried away and at present there are 47 remaining in position; some of these are also in bad condition.

Expenditure for year, $9,184.12.

The light draught steamers of the Northern Transportation Company, the only company operating in their vicinity, are still unable to navigate the rapids.

PRINCE ALBERT.

This boulder removal work was done on the north Saskatchewan river, near the city of Prince Albert in the constituency of Prince Albert. The work was accomplished with two scows; the one called the *Hawk,* dimensions, 47 by 18 feet by 2 feet 5 inches, was equipped with hand hoisting gear and iron grab or tongs. The other scow, dimensions 45 by 16 feet by 2 feet 8 inches, was used for towing material. The only facilities for towing were those provided by passing river steamers who gave their services gratis, as the work done was of considerable benefit to them.

A considerable portion of the work of boulder removal, during previous years, consisted in raising the rock and dumping it to one side of the scow. The result was that when the river rose and the ice went out, in a great many cases, the rocks were forced back to their original location. This meant that a good deal of last year's work consisted in going over previous year's work and removing the rock altogether from the river. In a great many instances, the rock proved too large for handling with the small hand power outfit and blasting had to be resorted to. The distance covered in this work was a total of about one and three-quarters mile, in close proximity to the city of Prince Albert.

Work started April 20, and stopped September 30, 1910.

Amount of rock removed, 669 tons, or 446 cubic yards.

Total cost of removal, $3,246.50.

Total expenditure, $4,939.39.

BRITISH COLUMBIA.

ARROW PARK.

This service was put in hand on October 26, and for the first few days a small party was engaged in making camp, building a pile-driver and preparing to drive piles along the foot of the bank upon which to build cribbing to protect the bank against erosion. Actual construction commenced on the wharf and bank protection on November 7, and continued until January 14, when work had to be closed down on account of severe weather. Operations were resumed on February 15, and continued until March 31, when the work was completed.

The length of this wharf is 280 feet and the width 16 feet. It is built on a uniform slope from 4 feet above high water level to 4 feet above low water level, and affords a good landing at any stage of water. The bank was protected by cribbing, resting on piles, for a distance of 510 feet, and is dealt with under 'Columbia river.'

The amount expended on this wharf was $2,852.09.

Protection work.

The river bank where, for various reasons, the wharf at Arrow Park has to be located, consists of two slopes. The first rises about 10 feet in 60 from low water mark, and is composed of stiff clay and fine gravel, and is not liable to scour. The second

slope rises about 24 feet in 20 and is known as a 'cut bank.' It is of an alluvial nature and has suffered severely from scouring during the high water of the last two seasons, or since cleared of the brush that formerly protected it. To protect this upper bank the intention is to crib upwards from the 'toe' for about 6 feet and from the top of the cribbing to slope the bank and brush and rock it. A row of piles has been driven along the 'toe' for a distance of about 450 feet, upon which to rest the cribbing. This work will be completed after the wharf is finished.

This protection work has been completed and is an excellent piece of work. During November, the piling, on which the cribbing rests, was driven and the work continued intermittently, until March 31.

The total cost, including material, was $4,964.46.

ATHALMER.

Before proceeding with the construction of this wharf it was necessary to do some dredging to straighten the channel. This work occupied the crew of the snag boat *Muskrat,* from the 21st of July to the 10th of August, the work being done with a Stanley scraper, operated by a hoisting engine. The amount of material moved was 2,300 cubic yards. As the required lumber could not be procured, the *Muskrat* was taken to Brisco to build the wharf there. On the 24th of October, lumber having been obtained, work was proceeded with and continued until the 8th of November, when the wharf was completed. It is 24 feet in width and 60 feet in length, substantially constructed on pile bents with a plank floor of 3-inch fir.

The total amount expended (including $277.50 for dredging) was $1,262.50.

BAMFIELD CREEK.

An appropriation of $5,000 was asked for to build a wharf at Bamfield Creek where the Pacific cable station is situated. It is also the northern end of the road which is being built by the Marine and Fisheries Department for life-saving purposes on the west coast of Vancouver island.

It was originally intended to build this wharf 140 feet long by 40 feet wide, but on account of the difficulty experienced in placing the reinforced concrete piers which had to be built in moulds, placed in position by a diver on the bottom, which is all bare rock shelving very quickly into deep water, the length of the wharf was reduced to 72 feet. The depth of water along the front varies from 16 to 25 feet at low water.

Operations were commenced on 1st August, 1910, and the work was closed down on October 21st, 1910.

The total expenditure was $5,132.50.

BRISCO.

This wharf was constructed by the crew of the snagboat *Muskrat.*

Work was commenced on the 13th of August and completed on the 25th of the same month. The platform is 18 feet by 24 feet and is 2 feet 6 inches above general high water level with a slip 6 feet wide and 24 feet in length sloping from the platform to low water level. The wharf is substantially built on pile bents and is floored with 3-inch fir. The cost was $733.57, including the time of crew of the snag boat *Muskrat.*

BURTON CITY.

Work was commenced on this wharf early in August and was continued without interruption until the end of October when operations had to be discontinued as the water was too high to complete the three outer bents. Work was resumed on the 14th of December, and the wharf was completed on the 31st of the same month. The length

of the wharf proper is 340 feet and width 32 feet with an approach 120 feet in length and 16 feet in width, making a total length of 500 feet. The wharf is on a uniform slope from above high to low water mark so that a landing thereon can be made at any stage of water, and there is a small shelter shed on the shore end for use during inclement weather.

The total amount expended was $5,974.69.

CAMPBELL RIVER.

The work done consisted in the renewal of the piles in the main wharf and part of the approach, which had been eaten away by the teredos. About 120 piles were driven in the main wharf and approach. When this was built, about 25 Australian piles were used as an experiment in the outer end of the approach. These are still standing, and have withstood the attack of the teredos and are apparently as sound as the day they were driven.

Work was commenced on September 5, and closed down on October 28, 1911.

The total expenditure was $3,844.71.

COLUMBIA RIVER.

From the 1st of April to the 23rd, the *Nakusp* was engaged in cutting a point off a bar in the Narrows of the Columbia river (between the Arrow lakes) immediately below the mouth of Cariboo creek (near Burton) and on the west side of the river. During this time, 6,143 cubic yards of dirt were moved with considerable benefit to the steamboat channel. From the 24th of April to the 10th of May, she was at work at Cottonwood Point, on the east side of the river and 5,000 feet below Cariboo creek. This work was also cutting a point off a bar and the time occupied was eighteen days. The amount of material moved was 3,091 cubic yards. This point projected out into the steamboat channel and, until removal, was a nasty obstacle to steamers to pass, as the current here has a velocity of about 8 miles an hour. As the water was rising rapidly and the current getting too strong to hold the *Nakusp* in, dredging was discontinued. From the 11th of May to the 21st, the dredge and crew were employed in driving mooring piles for future work and in moving the government pile-driver from Forsland's Landing to Burton for use there in construction of wharf. The crew was paid off on the 21st of May and the *Nakusp* laid up until after high water.

On the 1st of September, the *Nakusp* was again put in commission and the foreman given instructions to overhaul her thoroughly so as to be in good shape to proceed with dredging operations as soon as the stage of water would permit. This work occupied the crew until the 19th of September, when the dredge was moved to Deer Rock bar and actual dredging started on the 22nd of same month. This bar is about 1,800 feet below Cariboo creek, and on the west side of the river, and extends down stream to opposite Cottonwood Point. There are several channels cutting through it which direct a considerable quantity of water from the main channel. Dredging was continued on this bar (Deer Rock) until the 21st of December, when the dredge was moved down to the wing-dam. A cut 950 feet in length, 80 feet in width and 6 feet in depth was made along the east side of the bar, the gravel from which formed a bank that prevented any water escaping from the steamboat channel. The number of buckets moved during this time was 23,144.

From the 22nd December to the 23rd of January, the *Nakusp* was engaged in dredging at the 'Wing Dam,' at the lower end of the Narrows. A cut 400 feet in length and of a varying width and depth was made at this point, the water being too swift to get actual measurements. The number of buckets moved being 7,205.

On the 24th of January, the dredge was moved to above Cottonwood Point, where three days' dredging was done in removing a small bar, the amount of dirt moved

being 1,054 buckets. On the 28th of January, the *Nakusp* was moved up to Cariboo Bar, where she remained at work until the 9th of March, lenghtening, deepening and widening a cut made earlier in the year. During this time 11,110 buckets (yard) of material were moved, which, added to 6,143 buckets dredged in April and 14,000 cubic yards dredged from 22nd September to the 30th of November, made a total of 31,253 buckets of material moved on this bar during the fiscal year. This cut is 1,500 feet in length, 100 feet in width, with a varying depth of cut made that gives between 8 and 9 feet of water at its lowest stage.

From March the 10th to the 13th, the crew was engaged in making repairs to the machinery, spuds, &c., and on the 14th the dredge steamed to Arrow Park.

From the 15th to the 28th of March, a small bar, containing 3,219 buckets, above the Arrow Park wharf, was removed, and on the 31st the *Nakusp* returned to Cariboo Bar. The total number of buckets of material moved by the *Nakusp* during the year was 54,966, the capacity of the bucket being one cubic yard. The material moved was gravel ranging from very coarse to fine. The principal difficulty that had to be contended with was moving out of the channel to allow the steamboats to pass twice daily. This caused a lot of time to be lost, as the current at the narrows is so swift the dredge had to be moved on lines.

The *Pelican* was put in commission on the 1st of August, and commenced dredging on that date at the upper ford of the Little river. A channel was dredged through a bar to a depth of three feet, giving a depth of water at any stage of not less than four feet. The length of the cut made is 250 feet, and the width 100 feet, and the average depth 2 feet. The material moved being a fine gravel with stratum of stiff clay underlying it. The amount of material moved was 4,998 cubic yards (including what was recast) and the time occupied seventeen days.

The dredge was moved to the lower ford, Little river, on the 21st of August, and was employed at that point until the 10th of September in making a bank along the lower side of the channel dredged during the summer of 1909. A bank 450 feet in length, and 12 feet in height was thrown up.

From the 11th of September to the 26th, the crew was occupied in making some minor repairs, blowing out snags in the steamboat channel, Little river, and in moving the dredge to the lower end of Chase's Riffle, where dredging was started on the 27th of September and continued until the 19th of October.

A chanel was opened here 650 feet in length and 100 feet in width, giving a depth of water, when the river is at its lowest stage, of not less than 4 feet. The amount of gravel moved was 6,200 cubic yards, including about half the quantity which was recast.

On the 20th of October, the *Pelican* was moved to Shaw's Bar and was engaged there widening the cut made during the season of 1909, until the 26th of the same month. About 1,000 cubic yards of material was moved and the dredge was then moved down stream to Campbell's Bar, below Ducks.

Dredging commenced at Campbell's Bar on the 1st of November and was continued until the end of the fiscal year, at which time a cut had been opened from the head of the bar downstream for a distance of 1,700 feet in length and 100 feet in width, and a further distance of 320 feet with a width of 50 feet. The depth dredged throughout the whole distance averaging about 2 feet. When the dump cast from the south side is removed, the cut will have a depth of not less than 3 feet of water at any stage, and it will be completed by the end of May. The number of buckets ($\frac{3}{4}$ cubic yards) moved at Campbell's Bar was 35,107, making a total of 47,395 buckets for the year. The material moved at Campbell's Bar was partly a stiff clay that was hard to penetrate with the orange peel bucket that is in use on the *Pelican,* and it consequently did not fill well.

The total expenditure for the year was $10,966.09.

Above Golden.

The principal work done on this service was by the crew of the snag-boat *Muskrat* between Golden and Windermere lake and consisted of keeping the steamboat channel clear of water-logged timber, dropped from the several 'drives' of the Columbia River Lumber Company, during the season; clearing the river banks of sweepers, repairing wing, and other dams, removing snags and dredging with a Stanley scraper where bars had formed during high water of the previous season. There was not any work of any importance done during the season, the greater part of the time being devoted to removing the constantly accumulating obstructions lodged in the steamboat channel by the thirty million, or so, feet of timber driven from different points above, to Golden by the lumber company.

A good steamboat channel was kept open from the commencement of navigation until ice formed in November. In addition to the above work, wharfs at Athalmer and Brisco were built by the crew of the *Muskrat* as described under those heads. Work on this service commenced on the 1st of June and ended on the 8th of November.

The total amount expended during the season was $3,519.01.

CLAYOQUOT (TOFINO).

Repairs were made to Tofino wharf, (as it is now called), these repairs consisted principally in renewing some of the main piles of the wharf, which had been eaten away by teredos.

Work was commenced on June 23rd and finished on July 30th, 1910.

The total expenditure was $500.

COQUITLAM RIVER.

The work was commenced on October 20th, 1910, and closed down on December 2nd, 1910, and consisted in the removal of snags and drift which accumulated in the river, and from jams that divert the current and prevent logs, &c., from floating down to the mouth when they are boomed up and towed down the Fraser river to the various saw-mills.

The total expenditure was $651.74.

COURTNAY RIVER.

The work that was accomplished consisted in repairs to the bank protection at Courtnay, which was put in to prevent the river encroaching on the main road, leading from Courtnay to Campbell river, also in renewing the marks showing the channel at the mouth of the river.

The work was commenced on 1st August and closed down on September 30th, 1910.

The total expenditure was $1,147.30.

ESQUIMALT.

From December 30th, 1910, to January 11th, 1911, the dredge *King Edward* was at work in Esquimalt harbour deepening around the British Columbia Marine Railway Company's wharf. 17,500 cubic yards of material were removed.

The cost of this work was $1,586.62.

FRASER RIVER.

The dredge *Fruhling* was employed from April 1, to July 23 in dredging on the sand heads at the mouth of the Fraser river, between No. 4 black buoy and No. 2 red buoy. This part of the channel has been deepened between 3 and 4 feet at the shallow-

est place. During this period, from April 7 to May 11, the dredge was under repairs, and received her annual overhaul. The quantity of material removed was 296,000 cubic yards.

On July 23, 1910, the dredge left New Westminster for Alberni, to deepen the bar at the mouth of the Somos river, but on account of the hardness of the material this work had to be abandoned, and the dredge returned to Victoria, where a small amount of dredging was done. Some 6,400 cubic yards were removed from the channel near Shoal point. On August 20, 1910, the dredge returned to New Westminster and some small repairs were made, and on August 31, 1910, work was again started on the sandheads, and was continued there until October 31, 1910. 200,000 cubic yards of material were removed during this time.

From November 1, to November 13, 1910, the dredge was under repairs, and from November 14, 1910, to December 24, 1910, the dredge was employed in widening the channel and cutting off the point of a sand bar, just below the wing dam that was being constructed, at the lower end of Woodward's slough. Some of the material was deposited alongside the wing dam, and the rest was pumped on the top of the dam.

One hundred and seventy-two thousand eight hundred cubic yards of material was dredged during this period.

From December 26, 1910, to January 8, 1911, the dredge was under repairs, and on January 9, work was resumed at the wing dam, and was continued until March 24, 1911. Two hundred and forty-eight thousand eight hundred cubic yards of sand was dredged during this period. Repairs were again made, which were not completed on March 31, 1911, the end of the fiscal year.

The total amount of material dredged during the year was 924,800 cubic yards.

From February 7, 1911, to March 11, 1911, the dredge *King Edward* was employed at South Westminster to do some filling for the British Columbia electric Railway Company. Instructions were received to operate the dredge there for 30 days, the company paying, for the use of the dredge and plant, $150 per working day. During this time, 57,100 cubic yards were deposited on shore. The cost of this work was $3,656.39.

On March 12, 1911, the dredge was moved to the north arm of the Fraser river, and operations were commenced at the north arm bridge at New Westminster, and a start was made on an 8-foot channel at low water. About 1,000 feet of channel was dredged, 150 feet wide and 8 feet at low water. On March 31, instructions were received to move the dredge to Steveston, and on date work was stopped on the north arm after 31,100 cubic yards of material had been removed.

The snag-boat *Samson* was engaged during the year in keeping the channel of the Fraser river, between Sandheads and Chilliwack, clear of snags. In all 333 snags were removed. Most of these were lifted out of the channel and placed on shore, but some that were impossible to get hold of were blown up with dynamite.

The *Samson* is also employed in making surveys, &c., on the river and in looking after the buoys marking the channel, for which services the Department of Marine and Fisheries paid $1,515 during the year.

FRASER RIVER IMPROVEMENTS.

The expenditure under this appropriation was made at various places along the river in connection with improvements to navigation, &c.

At various times during the year, when necessary, work was done in the channel of the river near Chilliwack, such as the removal of snags and obstructions in the main channel leading to the Chilliwack Landing, and also in the channel to what is called the Minto Landing, which is used by the ferry steamer between Chilliwack and Harrison, the sum of $1,901.26 was expended.

During the months of April and May, 1910, repairs were made to wing dam No. 2, on Annieville bar. These repairs consisted in driving two rows of piles and filling

in with brush and rock a portion of the original dam that was carried away during the winter, and in strengthening the outer end by placing loose rock around it..

On July 1, 1910, work was commenced on a wing dam at the lower end of Woodward's slough. This dam was built 460 feet into the river, and consisted of two rows of piles driven 10 feet apart, and filled with brush and rock up to low water mark. Before the piles were driven, two rows of brush mattresses, 25 feet wide, were sunk on the site of the dam and covered with rock to prevent the sand from scouring, and allowing the rock and brush in the dam from settling.

The dredge *Fruhling* was employed in dredging the bar opposite the dam, and depositing the material on each side of the dam. Some of the material was also pumped on top of the dam. This material formed a slope from the top of the brush and was a great assistance in strengthening the dam, some of which was in 20 feet at low water.

Two scows were built during the year. One was 70 feet long, 22 feet wide, and 6 feet deep, to be used in carrying lumber, &c., to the various works on the river, and the other scow was 70 feet long by 22 feet wide, and 4 feet deep, with a house on it to be used as a boarding scow in connection with the works on the Fraser river.

The total expenditure on these two scows was $3,723.60.

KINKOLETH.

As it was found impossible to get a pile-driver to use in rebuilding this wharf, some temporary repair work was done to the old wharf to enable it to be used for the time being, and the sum of $461.96 was expended in this manner.

LANGLEY.

During the months of May and June, repairs were made to the protection work above and below the government wharf at Langley. This work consisted in driving piles and planking up to high water mark, to prevent the bank washing away.

The total expenditure was $3,561.01.

LOCKPORT.

No work was done on this wharf on account of there being so many conflicting interests as to the location.

The sum of $151.95 was expended, being the travelling expenses of an assistant engineer, who went to try and decide on the location of this wharf.

MASSETT.

Owing to conflicting interest over the location of this wharf, delay was caused in starting this work, but it was at last decided to build the wharf on the Indian reserve, as there was not sufficient money to build it at the end of the road, south of the Massett Village Indian reserve. On September 10, 1910, a contract was let to H. Edenshaw to build this wharf, which was completed at the end of January, 1911.

The total cost was $2,991.28.

MATSQUI.

Matsqui wharf was commenced on September 3, 1910. The main wharf is 50 feet by 60 feet with a slip 80 feet by 14 feet, an approach 30 feet by 14 feet and shed 18 feet by 40 feet. It was completed on October 2, 1910, and cost $2,768.43.

NANAIMO.

On September 13th the dredge left for Nanaimo and dredging was commenced near Nanaimo saw-mills. The material was pumped into a ravine, which the city was anxious to have filled. One week's work was also done, and the material pumped in to the other end of the ravine. The total amount of material moved was 153,800 cubic yards.

NASS RIVER.

The snag scow was put in commission on April 1st, 1910, and was given a general overhaul on April 16th, 1910. Snagging operations were commenced and carried on until the end of August when the scow was laid up in winter quarters, as the fishing on this river was finished for the season. One hundred and one snags were removed from the fishing grounds during the season.

The total expenditure was $3,448.76.

NEW WESTMINSTER.

Small repairs were made to the government wharf at New Westminster, such as driving new fender piles and a building was put up which is used as an office by Mr. Bayfield, the superintendent of dredges.

The total expenditure was $703.07.

Dredging.

From July 21st to September 8th, 1910, the dredge *King Edward* was undergoing repairs and was hauled out on the British Columbia Marine Railway ways. On September 9th the dredge came to New Westmisinter to get some gear before proceeding to Nanaimo. While at New Westminster the dredge did two days' work at the government wharf and removed 3,600 cubic yards of material.

NITNAT RIVER.

No work was done on the removal of the rock at the mouth of this river; at the present time there is no apparent necessity for it, as there is no logging going on on the Nitnat lake or river, and the parties interested in the timber, who were anxious for its removal, have, for the present, given up their original intention of towing logs out of the Nitnat, as the risk of losing them in the long tow that has to be made part of the way on the open ocean, is too great, and with the railway development that is going on on the southern part of Vancouver island, they will probably have rail connection that will provide a safer means of getting the timber to market.

For these reasons, it was considered that no public benefit would be derived from doing this work.

The expenditure amounted to $48.13 and was incurred in connection with an inspection that was made before arriving at the above conclusion.

OKANAGAN RIVER.

The dredge *Heron* was engaged from April 1 to December 31, on various kinds of work in an endeavour to improve, or make navigable, the Okanagan river between the upper and lower Okanagan lakes. The work consisted of dredging, clearing the banks of overhanging brush and sweepers, removing snags from the river bed and in bank protection, the time being divided about as follows:—

	Days.
Dredging	67
Clearing banks	12
Removing snags	32
Bank protection	98
	209

The balance of the time was employed in placing 'deadmen' and driving piles for lining purposes when moving the dredge up stream. During the year, a fairly good channel was opened between the upper and lower Okanagan lakes, the average width being over 30 feet and depth 2 feet at low water, and it is now possible for a steamboat to pass between the two lakes, as is shown by the following copies from the Vernon *News* of July 27, 1910:—

'The new Canadian Pacific Railway steamer *Kaleden* made her first trip between Okanagan Falls, July 27, carrying 35 passengers. She is a fine boat, and will be a great convenience to the residents of the lower Okanagan.

Before the government improvement work was started, it was a difficult matter to make the trip between the two lakes in a row boat.

During the year, 85 feet of protection work was completed; piling was driven for 1,390 feet, and 270 feet filled in with brush. Work on this service commenced on April 1, and was closed down on December 31.

The total expenditure for the year was $7,775.98.

PITT RIVER.

Work was commenced on Pitt river wharf on June 4, 1910. The work consisted in taking down the old wharf and rebuilding it 100 feet farther out in the river to give a greater depth of water along the front. This wharf is 60 feet by 60 feet, with an approach 16 feet wide and 240 feet long, and a shed 40 feet by 18 feet.

This work was completed on June 30, 1910.

The total cost was $1,879.42.

PORCHER ISLAND.

This wharf was not built as on account of various conflicting interests, the location could not be decided upon.

No expenditure was made.

PORT KELLS.

Port Kells wharf was started on August 16, and completed on September 2, 1910. It is 50 feet by 60 feet, with an approach 40 feet by 14 feet wide. The total cost was $1,851.85.

PROCTOR.

Work on this wharf was started on October 10, and completed on December 8. The length is 210 feet and width 32, with an approach 16 by 56 feet, and there is a small shelter shed on the shore end.

The amount expended was $3,967.96.

QUATSINO.

The work done under this appropriation consisted in the removal of the shed from the old wharf, which was not used, and rebuilding it on the new wharf.

The total expenditure was $99.

QUEEN CHARLOTTE CITY.

This wharf was commenced on the 9th of July, and was completed on the 24th of September, 1910. It is 40 feet long by 40 feet wide, with an approach 420 feet long and 16 feet wide. It was built of ordinary unprotected piling, and cost $4,015.40.

QUEEN'S BAY.

On the 9th of December, the outfit used in the construction of the wharf at Proctor was moved to Queen's Bay. The time occupied until the 13th in fixing up camp, clearing drift wood off the beach and in making some repairs to the outfit. Pile driving started on the 15th of December and general construction work continued from that date until the 23rd of March, when everything was completed. The length of this wharf is 260 feet and width 32 feet. It is on a uniform slope to accommodate steamboats at any stage of water. At the shore end there is a small shelter shed 10 by 20 feet, and a warehouse 10 by 20 feet, which is used to store government property.

The cost of construction was $7,199.97.

SKEENA RIVER.

The snag boat *Cygnet* commenced snagging operations on the Skeena river on April 1, 1910, and was laid up in winter quarters on October 8. During the season, 208 snags were removed from the fishing grounds and channel of the river, and a lot of work was done on the bars, which are exposed at low water, in the way of cutting small sticks and brush that get embedded in the sand, leaving the ends projecting, on which the fishing nets catch when drifting over these bars at high water.

At the beginning of March, 1911, the crew were put on the boat to get ready for snagging, when the fishing commenced, and she was about ready for work at the end of March.

The expenditure for the year was $6,183.44.

SKIDIGATE.

This wharf was built during the months of August and September. It is 40 feet long by 30 feet wide, with an approach 384 feet long and 16 feet wide.

This wharf is built of ordinary unprotected piling, and the total cost was $4,147.28.

SMITH LANDING.

This wharf was built during the month of October, and is 50 feet long by 40 feet wide, with an approach 240 feet long by 14 feet wide, and shed 12 feet by 16 feet. There is 9 feet of water at the outer face of the wharf at low water.

The total cost was $2,295.53.

SOOKE HARBOUR.

This work consisted in blasting off three points of rock at the entrance of Sooke harbour, called Entry Lodge, to give a depth of 5 feet at low water. The rock was blasted to the above mentioned depth, and removed to about 2 feet below low water, and there remains about 3 feet of loose rock that could not be removed, as there were no appliances with which to work under water. There will probably be a few points to be blasted off when the balance of the loose rock is removed. This work was started on July 12, and closed down on November 22, 1910.

The total expenditure was $4,893.57.

STEVESTON.

On July 2, 1910, work was started on Steveston wharf, which was built 60 feet by 60 feet with an approach 175 feet long by 14 feet wide, and a shed 34 feet by 16 feet.

This work was completed on August 5, 1910, and cost $2,759.75.

STEWART.

On July 13, 1910, a contract was entered into with Messrs. Gillet & McDonald to build 2,472 feet of trestle approach for $15,000. It was afterwards decided to complete the approach on condition that the contractor would wait payment until the money was voted by parliament, and a further contract was entered into with Messrs. Gillet & McDonald to complete the approach at the same price per bent as the first contract. Both contracts were finished at the end of November, the total length to the approach being 4,135 feet of pile trestle, and 290 feet of earth embankment.

SUMAS.

Sumas wharf consists in a slip 80 feet by 14 feet, a platform 70 feet by 45 feet, with a shed 50 feet by 32 feet, built on it. It was commenced on September 1, and finished on October 30, 1910, and cost $1,790.

UPPER FRASER RIVER.

Fort George Canyon.

Work commenced on the 2nd of October and was proceeded with until the 31st of December, when the party left for Quesnel on their way out. A trail was made 400 feet in length, along the east side of the river, to be used in getting a line out for 'lining' during high water; and a log house 12 by 26 feet for storing the outfit, when not in use, was erected.

UPPER LILLOOET RIVER.

The work on this service was put in hand on the 1st of August and closed down on the 12th of November. Fifteen log jams were removed during the season's operations, from the lower 28 miles of river and there are several places in this distance that will require more work done before the river is navigable. An examination of this river should be made before any more money is expended upon it.

The total expenditure was $2,819.10.

VANCOUVER HARBOUR.

From April 1 to May 28, 1910, the dredge *King Edward* was employed in finishing the channel that was started last year in the upper end of False Creek, between Westminster avenue and the Great Northern railway trestle along the face of the wharf as far as the British Columbia Electric Railway Company's power house. This channel was dredged about 120 feet wide and 8 feet deep at low water, and 91,400 cubic yards of mud and clay were removed.

From May 29, 1910, to July 6, 1910, the dredge was employed doing some filling for the city of Vancouver, in False Creek, at the northern end of Gamble street bridge, and 49,400 cubic yards of material mostly mud and clay were removed.

From July 7 to July 20, 1910, some dredging in Vancouver harbour was done and the harbour was deepened in front of Evans, Coleman & Evans' wharf; 29,500 cubic yards of material was removed.

The total cost of this work was $16,653.83.

VICTORIA.

From December 16 to December 29, 1910, the dredge *King Edward* was at work in Victoria harbour, near Shoal point, and 10,150 cubic yards of material were removed.

The dredge *Ajax* was employed from April 1 to May 31, 1910, in deepening the inner harbour at Victoria, around the new Grand Trunk Pacific wharf, and in James bay to a uniform depth of 20 feet at low water. 53,710 cubic yards of mud and clay were removed.

From June 1, 1910, to the end of March, 1911, the dredge was employed in dredging the channel from the mouth to Sehls point to a depth of 20 feet at low water. This channel is now almost finished, there being about one month's work to do near Sehls Point.

The amount of material removed from this part of the harbour was 159,480 cubic yards, of which 1,210 yards was loose rock that had been blasted off Dredger Rock.

Dredger Rock.

The drill plant has been continuously employed on Dredger Rock from April 1, 1910, to March 31, 1911, which is being blasted to give a depth of water over it of 20 feet at low water to which the main channel of Victoria harbour is being dredged. Twenty-three and half platforms, 18 feet by 28 feet, were drilled and blasted during the year. The number of 2¼-inch holes drilled was 957, and the total length of these holes was 4,761 feet. Each hole is drilled 2 feet below grade, and about 3 feet apart, and the average depth of each hole was 5 feet and the total amount of solid rock blasted was 1,762 cubic yards.

The dredge *Mud Lark* has been employed during the whole of the fiscal year in deepening the upper harbour at Victoria, to a uniform depth of 20 feet at low tide.

The total amount of material removed was 146,810 cubic yards of mud and clay.

WILLIAM'S HEAD.

The work done at the William's Head quarantine station this year consisted in general repairs to the large and small wharf. The principal repairs were patching, with copper, the main piles. This work has to be done nearly every year, as the copper is getting thin, and holes get worn through by the action of the sea and drift wood that gets caught between the piles. This work is rather expensive as it can only be done at low tide.

Repairs were made to the roads in the quarantine grounds, also to the road which was built to connect the station with the main road leading to Victoria.

One thousand six hundred feet of 4-inch and 1,050 feet of 3-inch wooden pipe was laid from the filter to the wharf, and two inch galvanized branch pipes were laid to each of the buildings for fire protection and irrigation purposes; as before, all the water used had to go through the filter, and the pressure was not as good as it is coming directly from the main.

This gives all buildings a separate service for fire purposes.

The total expenditure was $9,983.04.

YAKOUN RIVER.

The work on this river, which runs through the centre of Graham island, which is the northern, and largest, of the Queen Charlotte islands, consisted in the removal of drift wood from the channel of the river, also in cutting a passage through the log jams (which are very large) to enable boats to be taken up and down by prospec-

tors, &c., who may want to get into the centre of the island and Yakoun lake, where there are extensive coal measures.

The work was commenced on July 30 and finished on September 30, 1910.

DREDGING OPERATIONS.

The detail descriptions of work done by the different dredges will be found under the name of the place, in the body of the report.

Where dredging is described and classified as 'A,' 'B' or 'C,' the explanation is, that solid rock or boulders of two cubic yards capacity or more, are covered by Class 'A'; loose rock or small boulders in Class 'B,' while all other material, such as sand, clay, &c., are included in Class 'C.'

The following tables cover the work done by each particular dredge.

MARITIME PROVINCES.

Government Dredges.

CLASSIFICATION OF DISBURSEMENTS of the Dredges during the Year ending March 31, 1911.

DREDGE 'ST. LAWRENCE.'

ITEMS.	April.	May.	June.	July.	August.	September	October.	November	December	January.	February.	March.	Grand Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts
Wages	539 68	612 50	608 90	722 40	712 60	677 35	639 93	571 32	481 51	255 07	334 12	549 96	6,705 34
Coal	.....	7 40	472 18	296 91	440 96	431 91	445 13	330 86	.....	.....	.....	172 63	2,597 98
Provisions	321 20	213 15	262 26	229 50	246 52	222 92	75 98	160 24	174 86	50 71	67 68	212 04	2,237 06
Stores	.....	76 01	26 08	.....	.....	17 71	.....	41 39	1 50	58 38	102 66	26 04	349 77
Equipment	.....	165 27	.....	.....	.....	.....	78 02	23 86	.....	.....	.....	.....	267 15
Water	.....	.....	.....	.....	.....	.....	23 48	.....	.....	.....	.....	.....	23 48
Repairs	2,237 81	2,585 30	337 11	200 00	348 85	852 40	238 02	.....	.....	99 00	132 65	4,688 24	11,719 38
Towage	.....	.....	480 00	1,000 00	4,000 00	2,000 00	2,000 00	840 00	.....	.....	.....	.....	10,320 00
Contingencies	31 70	38 00	.....	69 74	5 00	16 45	29 70	68 90	.....	19 13	.....	41 21	319 83
Totals	3,130 39	3,697 63	2,186 53	2,518 55	5,753 93	4,218 74	3,530 26	2,036 57	657 87	482 29	637 11	5,690 12	34,539 99
Working expenses	Nil.	1,112 33	1,849 42	2,318 55	5,405 08	3,366 34	3,292 24	2,036 57	657 87	19 13	Nil.	Nil.	20,057 53
Repairs, ordinary	Nil.	Nil.	Nil.	200 00	337 70	852 40	238 02	Nil.	Nil.	Nil.	Nil.	3,101 69	4,729 81
" extraordinary	3,130 39	2,585 30	337 11	Nil,	11 15	Nil.	Nil.	Nil.	Nil.	463 16	637 11	2,588 43	9,752 65
Totals	3,130 39	3,697 63	2,186 53	2,518 55	5,753 93	4,218 74	3,530 26	2,036 57	657 87	482 29	637 11	5,690 12	34,539 99

DREDGE 'NEW DOMINION.'

Wages	318 55	99 28	35 99	.....	15 50	15 00	17 00	15 60	15 50	15 50	14 00	15 50	577 42
Stores	24 45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24 45
Repairs	27 38	24 10	.....	836 04	.....	.....	.....	.....	.....	.....	.....	.....	887 52
Pilotage	.....	.....	.....	15 00	.....	.....	.....	.....	.....	.....	.....	.....	15 00
Towage	.....	.....	.....	4 00	.....	.....	.....	.....	.....	.....	.....	.....	4 00
Contingencies	25 94	34 19	13 80	.....	.....	.....	.....	27 00	.....	.....	.....	.....	100 93
Totals	396 32	157 57	49 79	855 04	15 50	15 00	17 00	42 60	15 50	15 50	14 00	15 50	1,609 32
Working expenses	Nil.	38 47	49 79	19 00	15 50	15 00	17 00	42 60	15 50	15 50	14 00	15 50	257 86
Repairs, ordinary	Nil.	Nil.	Nil.	53 54	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	53 54
" extraordinary	396 32	119 10	Nil.	782 50	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	1,297 92
Totals	396 32	157 57	49 79	855 04	15 50	15 00	17 00	42 60	15 50	15 50	14 00	15 50	1,609 32

DREDGE 'PRINCE EDWARD.'

Wages	516 78	500 00	497 62	477 48	491 29	497 13	500 00	469 59	413 44	100 65	197 50	336 84	5,006 32
Coal	169 87	37 75	277 80	33 01	48 72	11 00	.....	233 97	70 00	.....	.....	.....	882 12
Provisions	25 18	104 37	.....	38 89	226 06	37 06	15 54	516 08	36 90	42 61	32 50	50 92	1,126 11
Stores	86 02	.....	29 45	.....	.....	436 39	.....	241 05	.....	.....	.....	.....	792 91
Equipment	.....	.....	.....	222 81	.....	.....	32 88	147 49	.....	6 75	.....	.....	409 93
Water	24 30	.....	45 00	56 65	.....	130 75	54 00	48 10	.....	.....	.....	.....	358 80
Repairs	.....	33 00	.....	226 09	51 34	110 36	305 88	623 74	.....	.....	.....	.....	1,353 41
Pilotage	.....	.....	.....	14 75	.....	37 95	.....	.....	.....	.....	.....	.....	52 70
Towage	350 00	600 00	625 00	575 00	598 83	825 00	625 00	650 00	415 00	.....	.....	.....	5,263 83
Contingencies	7 70	.....	.....	13 80	.....	.....	.....	.....	22 77	.....	.....	.....	44 27
Totals	1,179 85	1,275 12	1,474 87	1,658 48	1,419 24	2,085 64	1,533 30	2,930 02	958 11	158 01	230 00	387 76	15,290 40
Working expenses	663 07	1,242 12	1,474 87	1,432 39	1,364 90	1,975 28	1,227 42	2,306 28	958 11	18 09	Nil.	Nil.	12,662 53
Repairs, ordinary	Nil.	Nil.	Nil.	226 09	34 34	110 36	Nil.	623 74	Nil.	Nil.	Nil.	Nil.	994 53
" extraordinary	516 78	33 00	Nil.	Nil.	20 00	Nil.	305 88	Nil.	Nil.	139 92	230 00	387 76	1,633 34
Totals	1,179 85	1,275 12	1,474 87	1,658 48	1,419 24	2,085 64	1,533 30	2,930 02	958 11	158 01	230 00	387 76	15,290 40

CLASSIFICATION OF DISBURSEMENTS of the Dredges during the Year ending March 31, 1911.

DREDGE 'GEO. McKENZIE.'

ITEMS.	April.	May.	June.	July.	August.	September	October.	November	December	January.	February.	March.	Grand Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	.....	.....	444 53	552 21	542 41	488 12	.....	.....	.....	.....	.....	2,027 27
Coal	.....	.....	.....	432 79	.....	480 48	.....	.....	.....	.....	.....	.....	913 27
Provisions	.....	.....	.....	33 84	100 88	239 06	89 54	.....	.....	.....	.....	.....	463 32
Stores	.....	.....	.....	.....	.....	314 71	10 23	.....	5 00	.....	.....	.....	329 94
Equipment	.....	.....	.....	.....	19 13	24 26	.....	.....	.....	.....	.....	.....	43 39
Water	.....	.....	.....	48 00	50 00	50 00	50 00	.....	.....	.....	.....	.....	198 00
Repairs	.....	.....	.....	.....	65 28	439 89	3 60	.....	.....	.....	.....	.....	508 77
Pilotage	.....	.....	.....	10 00	.....	.....	.....	.....	.....	.....	.....	.....	10 00
Towage	.....	.....	.....	74 00	162 00	.....	.....	770 83	.....	.....	.....	.....	1,006 83
Wharfage	.....	.....	.....	.....	.....	10 00	27 00	.....	.....	.....	.....	.....	37 00
Contingencies	.....	.....	.....	.....	74 90	.....	.....	.....	.....	.....	.....	.....	74 90
Totals	.....	.....	.....	1,043 16	1,024 40	2,100 81	668 49	770 83	5 00	.....	.....	.....	5,612 69
Working expenses	.....	.....	.....	1,043 16	959 12	1,660 92	664 89	770 83	5 00	.....	.....	.....	5,103 92
Repairs, ordinary	.....	.....	.....	Nil.	65 28	37 89	3 60	Nil.	Nil.	.....	.....	.....	106 77
" extraordinary	.....	.....	.....	Nil.	Nil.	402 00	Nil.	Nil.	Nil.	.....	.....	.....	402 00
Totals	.....	.....	.....	1,043 16	1,024 40	2,100 81	668 49	770 83	5 00	.....	.....	.....	5,612 69

DREDGE 'NEW BRUNSWICK.'

Wages	718 00	683 28	552 38	484 29	490 36	480 50	476 85	477 24	397 76	329 00	201 88	200 22	5,491 76
Coal	.....	20 98	92 86	66 41	297 14	97 87	.....	91 36	.....	.....	10 45	.....	677 07
Provisions	.....	148 85	246 86	109 19	177 71	238 44	118 20	54 00	133 83	45 00	43 32	43 32	1,358 72
Stores	68 85	218 34	43 19	112 30	69 07	31 18	.....	7 51	69 38	7 01	.....	.....	626 83
Equipment	.....	150 73	40 55	137 94	72 26	.....	61 05	58 85	.....	.....	.....	.....	521 38
Water	6 40	3 00	6 60	24 20	.....	.....	.....	.....	20 00	.....	.....	.....	60 20
Repairs	239 33	581 07	889 55	254 81	408 54	12 44	.....	95 97	75 75	32 57	16 73	1,206 84	3,813 60
Towage	.....	12 00	839 00	773 68	686 06	676 00	75 00	1,690 60	300 00	.....	8 00	.....	5,060 34
Wharfage	.....	.....	.....	14 14	.....	.....	.....	90 98	.....	.....	.....	.....	105 12
Contingencies	2 15	4 30	2 75	9 25	5 15	6 24	4 40	3 00	.....	.....	.....	.....	37 24
Totals	1,034 73	1,822 55	2,713 74	1,986 21	2,206 29	1,542 67	735 50	2,569 51	996 72	413 58	280 38	1,450 38	17,752 26
Working Expenses	Nil.	830 89	1,783 44	1,731 40	1,797 75	1,530 23	735 50	2,473 54	920 97	Nil.	8 00	Nil.	11,811 72
Repairs, ordinary	Nil.	27 07	92 97	Nil.	408 54	12 44	Nil.	95 97	75 75	Nil.	Nil.	1,179 75	1,892 49
" extraordinary	1,034 73	964 59	837 33	254 81	Nil.	Nil.	Nil.	Nil.	Nil.	413 58	272 38	270 63	4,048 05
Totals	1,034 73	1,822 55	2,713 74	1,986 21	2,206 29	1,542 67	735 50	2,569 51	996 72	413 58	280 38	1,450 38	17,752 26

DREDGE 'W. S. FIELDING.'

Wages	1,177 07	1,224 70	1,219 49	1,248 08	1,252 84	1,254 59	1,586 89	1,475 75	1,294 17	1,253 19	1,229 50	1,197 93	15,414 20
Coal	414 80	817 55	283 84	261 97	474 60	417 18	541 16	276 49	196 43	395 81	15 50	15 50	4,110 03
Provisions	261 60	164 22	364 71	500 89	293 97	214 62	418 53	294 64	327 80	240 44	340 45	243 00	3,664 87
Stores	97 56	35 16	32 16	69 86	74 44	100 61	262 90	26 15	46 00	79 74	83 82	81 85	930 25
Equipment	8 75	417 30	124 10	183 39	206 50	175 96	19 50	353 53	.....	54 95	.....	.....	1,543 98
Water	65 50	69 12	97 36	90 40	76 56	82 71	81 60	159 66	104 44	129 70	35 70	15 19	1,007 94
Repairs	602 70	921 35	538 29	585 39	983 50	1,505 44	1,340 35	2,566 53	242 14	98 14	276 63	542 73	10,203 19
Pilotage	100 00	130 00	130 00	130 00	125 00	125 00	130 00	130 00	100 00	.....	.....	.....	1,100 00
Towage	715 00	1,237 50	787 50	904 00	1,200 00	.....	482 50	.....	.....	.....	.....	.....	5,326 50
Wharfage	105 06	531 56	328 13	339 06	339 06	328 13	339 06	328 13	229 68	.....	.....	.....	2,867 87
Contingencies	5 60	3 30	.....	57 74	.....	16 09	2 40	28 40	.....	2 80	16 45	7 70	140 48
Totals	3,552 84	5,551 76	3,905 58	4,370 78	5,026 47	4,220 33	5,144 89	5,639 28	2,540 66	2,254 77	1,998 05	2,103 90	46,309 31
Working expenses	2,922 71	4,630 41	3,367 29	3,785 39	4,042 97	2,714 89	3,477 29	3,013 00	2,298 52	39 77	163 85	360 91	30,817 00
Repairs, ordinary	503 23	921 35	195 79	585 39	908 00	702 38	781 29	649 03	77 83	Nil.	Nil.	542 73	5,867 02
" extraordinary	126 90	Nil.	342 50	Nil.	75 50	803 06	886 31	1,977 25	164 31	2,215 00	1,834 20	1,200 26	9,625 29
Totals	3,552 84	5,551 76	3,905 58	43,70 78	5,026 47	4,220 33	5,144 89	5,639 28	2,540 66	2,254 77	1,998 05	2,103 90	46,309 31

CLASSIFICATION OF DISBURSEMENTS of the Dredges during the Year ending March 31, 1911.

DREDGE 'MONTAGUE'.

Items.	April.	May.	June.	July.	August.	September	October.	November	December	January.	February.	March.	Grand Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	593 88	505 00	505 77	515 00	507 08	505 00	505 00	525 71	474 20	122 46	228 34	533 75	5,521 19
Coal	65 48	146 01	183 56	79 63	157 33	122 40	175 62	535 48	.....	.....	.....	.....	1,465 51
Provisions	182 97	120 04	339 20	64 99	187 08	137 33	160 62	169 29	112 87	37 68	45 00	60 00	1,617 07
Stores	195 85	28 78	30 80	20 97	40 43	16 00	44 45	48 59	89 20	.....	.....	.....	515 07
Equipment	.....	333 95	89 00	.....	.....	.....	40 86	58 41	.....	.....	.....	.....	522 22
Water	.....	.....	.....	20 10	4 60	3 50	.....	.....	.....	.....	.....	20 00	48 20
Repairs	51 50	.....	32 50	1,287 04	283 13	426 31	.....	266 97	167 26	118 44	.....	178 07	2,811 22
Pilotage	.....	.....	60 00	205 00	.....	.....	.....	.....	.....	.....	.....	.....	265 00
Towage	400 00	625 00	650 00	705 00	722 00	637 50	625 00	662 50	475 00	.....	.....	4 00	5,506 00
Wharfage	25 00	10 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35 00
Contingencies	12 00	.....	.....	5 50	.....	15 26	5 10	138 85	.....	.....	.....	30 74	207 45
Totals	1,526 68	1,768 78	1,890 83	2,903 23	1,901 65	1,863 30	1,556 65	2,405 80	1,318 53	278 58	273 34	826 56	18,513 93
Working expenses	881 30	1,768 78	1,858 33	1,616 19	1,618 52	1436 99	1,556 65	2,138 83	1,140 92	Nil.	Nil.	Nil.	14,016 51
Repairs, ordinary	Nil.	Nil.	Nil.	880 27	87 45	426 31	Nil.	266 97	27 26	Nil.	Nil.	800 56	2,488 82
" extraordinary	645 38	Nil.	32 50	406 77	195 68	Nil.	Nil.	Nil.	150 35	278 58	273 34	26 00	2,008 60
Totals	1,526 68	1,768 78	1,890 83	2,903 23	1,901 65	1,863 30	1,556 65	2,405 80	1,318 53	278 58	273 34	826 56	18,513 93

TUG 'HELENA'.

Wages	542 75	555 77	517 55	546 77	566 21	555 00	565 00	610 46	569 52	399 52	339 65	631 86	6,400 06
Coal	383 11	410 41	117 86	140 42	454 01	147 70	240 62	250 99	146 34	7 50	15 50	7 75	2,322 21
Provisions	313 42	217 12	157 86	237 55	204 98	190 75	171 03	207 42	184 26	72 39	90 50	166 11	2,113 39
Stores	18 38	27 75	40 41	44 32	38 25	16 99	79 27	32 86	11 98	31 43	139 71	25 22	506 57
Equipment	216 93	41 54	287 60	252 62	38 73	235 34	.....	46 76	131 94	4 24	.....	.....	1,255 70
Water	49 30	14 40	32 80	21 00	16 00	24 40	17 00	15 50	15 60	1 80	.....	36 40	244 20
Repairs	287 63	451 73	332 21	12 50	84 90	117 92	10 36	521 28	34 55	.....	43 51	1,932 76	3,829 35
Pilotage	.....	.....	.....	.....	6 00	.....	.....	.....	.....	.....	.....	.....	6 00
Towage	8 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18 00	26 00
Wharfage	.....	.....	.....	.....	.....	.....	.....	.....	1 10	.....	.....	.....	1 10
Contingencies	28 75	3 18	.....	14 38	.....	23 55	.....	11 54	2 00	.....	.....	27 43	110 83
Totals	1,748 27	1,721 90	1,486 29	1,269 56	1,409 08	1,311 65	1,083 28	1,696 81	1,097 29	516 88	628 87	2,845 53	16,815 41
Working expenses	1,460 64	1,270 17	1,154 08	1,257 06	1,324 18	1,193 73	1,072 92	1,175 53	1,062 74	4 24	Nil.	Nil.	10,975 29
Repairs, ordinary	Nil.	451 73	97 92	12 50	84 90	117 92	10 36	264 40	34 55	Nil.	Nil.	2,207 17	3,281 45
" extraordinary	287 63	Nil.	234 29	Nil.	Nil.	Nil.	Nil.	256 88	Nil.	512 64	628 87	638 36	2,558 67
Totals	1,748 27	1,721 90	1,486 29	1,269 56	1,409 08	1,311 65	1,083 28	1,696 81	1,097 29	516 88	628 87	2,845 53	16,815 41

TUG 'HERCULES'.

Wages	320 00	325 57	338 81	355 00	492 01	355 00	355 00	355 00	355 00	324 04	452 38	440 17	4,467 98
Coal	140 15	161 11	135 39	102 97	133 51	169 91	80 71	123 89	101 41	51 32	.....	52 61	1,252 98
Provisions	74 62	87 25	64 47	19 38	29 68	326 82	110 94	117 09	113 57	107 00	109 18	119 98	1,279 98
Stores	21 62	33 71	33 14	129 52	69 89	30 14	28 99	15 58	23 32	4 95	51 77	11 58	454 21
Equipment	74 07	.....	22 61	85 02	81 55	7 03	.....	.....	87 76	5 08	.....	74 57	445 69
Water	35 25	48 45	31 05	39 55	38 30	29 60	26 60	42 60	18 60	5 00	.....	6 00	321 00
Repairs	.....	102 83	36 66	75 70	33 76	.....	.....	20 38	.....	.....	82 75	726 05	1,078 07
Pilotage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Towage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wharfage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27 40	27 40
Contingencies	.....	.....	.....	0 90	.....	0 21	.....	1 26	.....	.....	.....	2 30	4 70
Totals	665 71	758 92	662 07	808 04	886 70	918 74	602 24	675 80	699 66	497 39	696 08	1,460 66	9,332 01
Working expenses	665 71	656 09	625 47	732 34	852 94	918 74	602 24	655 42	699 66	22 00	Nil.	Nil.	6,430 61
Repairs, ordinary	Nil.	21 66	36 60	Nil.	33 76	Nil.	Nil.	20 38	Nil.	Nil.	Nil.	918 32	1,030 72
" extraordinary	Nil.	81 17	Nil.	75 70	Nil.	Nil.	Nil.	Nil.	Nil.	475 39	696 08	542 34	1,870 68
Totals	665 71	758 92	662 07	808 04	886 70	918 74	602 24	675 80	699 66	497 39	696 08	1,460 66	9,332 01

CLASSIFICATION OF DISBURSEMENTS of the Dredges during the Year ending March 31, 1911.

DREDGE 'NERIUS '.

Items.	April.	May.	June.	July.	August.	September	October.	November	December	January.	February.	March.	Grand total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	.....	407 34	775 15	803 60	974 23	840 10	626 24	420 75	386 33	445 66	678 53	6,357 93
Coal	.....	.....	.....	336 01	287 50	265 00	213 75	172 50	.....	.....	.....	.....	1,274 76
Provisions	.....	.....	290 27	15 29	301 29	127 39	28 48	245 94	102 92	180 77	136 77	164 60	1,603 72
Stores	.....	.....	.....	.....	388 41	33 13	38 75	120 32	6 49	1 51	.....	206 06	794 70
Equipment	.....	.....	48 62	370 29	.....	33 40	.....	73 15	70 62	.....	.....	.....	596 08
Water	.....	.....	.....	75 00	145 95	65 81	15 00	60 00	.....	.....	.....	.....	361 76
Repairs	.....	.....	.....	724 44	223 95	172 08	.....	.....	.....	.....	54 88	485 86	1,661 21
Pilotage	.....	.....	.....	89 45	75 75	67 25	46 50	31 50	.....	.....	.....	.....	310 45
Towage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wharfage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Contingencies	.....	.....	72 90	30 98	10 85	11 44	285 02	6 83	4 75	75 92	30 13	32 71	561 53
Totals	.....	.....	819 13	2,416 61	2,237 30	1,749 73	1,477 60	1,336 48	605 53	644 56	667 44	1,567 76	13,522 14
Working expenses	.....	.....	411 79	1,692 17	2,013 35	1,577 65	1,477 60	1,336 48	605 53	53 42	30 13	Nil.	9,198 12
Repairs, ordinary	.....	.....	Nil.	129 41	Nil.	172 08	Nil.	Nil.	Nil.	Nil.	Nil.	758 02	1,059 51
" extraordinary	.....	.....	407 34	595 03	223 95	Nil.	Nil.	Nil.	Nil.	591 14	637 31	809 74	3,264 51
Totals	.....	.....	819 13	2,416 61	2,237 30	1,749 73	1,477 60	1,336 48	605 53	644 56	667 44	1,567 76	13,522 14

TUG 'CANSO.'

Wages	.....	227 34	182 05	280 00	314 52	416 72	660 41	595 00	627 50	390 82	285 00	514 42	4,493 78
Coal	.....	.....	.....	.....	.....	218 94	92 32	169 30	110 98	.....	.....	178 83	770 37
Provisions	.....	31 00	67 71	119 66	140 30	357 98	126 17	165 93	198 96	81 40	75 00	205 98	1,570 09
Stores	.....	.....	86 00	.....	44 49	349 31	153 14	13 86	45 90	6 68	42 43	108 33	850 14
Equipment	.....	6 50	.....	459 74	233 05	605 53	284 04	99 28	99 25	.....	.....	.....	1,787 39
Water	.....	.....	.....	.....	.....	.....	7 00	15 00	15 00	.....	10 00	38 00	85 00
Repairs	.....	.....	.....	.....	.....	198 26	8 35	99 18	175 22	68 47	26 45	922 17	1,498 10
Pilotage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Towage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wharfage	.....	.....	.....	.....	.....	.....	13 29	4 00	.....	.....	10 00	14 70	41 99
Contingencies	.....	15 00	11 90	12 00	.....	33 17	4 65	5 47	8 00	.....	.....	.....	90 19
Totals	Nil.	279 84	347 66	871 40	732 36	2,179 91	1,349 37	1,167 02	1,280 81	547 37	448 88	1,982 43	11,187 05
Working expenses	Nil.	279 84	165 61	591 40	417 84	1,981 65	1,341 02	1,067 84	1,105 59	77 76	Nil.	Nil.	7,028 55
Repairs, ordinary	Nil.	Nil.	Nil.	Nil.	Nil.	198 26	8 35	99 18	168 34	Nil.	Nil.	1,369 12	1,843 25
" extraordinary	Nil.	Nil.	182 05	280 00	314 52	Nil.	Nil.	Nil.	6 88	469 61	448 88	613 31	2,315 25
Totals	Nil.	279 84	347 66	871 40	732 36	2,179 91	1,349 37	1,167 02	1,280 81	547 37	448 88	1,982 43	11,187 05

DREDGE 'CANADA.'

Wages	510 92	727 02	993 45	980 47	871 51	836 05	740 92	752 35	735 00	293 91	362 00	362 00	8,165 60
Coal	39 07	310 56	380 86	405 09	460 97	279 86	578 41	140 55	171 52	.....	.....	56 08	2,822 97
Provisions	166 61	173 02	187 85	210 53	278 50	221 75	224 07	245 50	158 22	64 65	105 00	105 00	2,140 70
Stores	210 67	145 88	219 87	146 69	182 25	144 52	18 86	.....	156 62	10 65	.....	427 66	1,663 67
Equipment	.....	.....	.....	21 50	.....	61 75	.....	.....	201 87	.....	.....	100 00	385 12
Water	.....	29 29	.....	.....	.....	43 50	25 00	61 95	20 00	.....	.....	.....	179 74
Repairs	285 15	2,572 03	.....	170 49	.....	1,957 28	.....	.....	.....	192 72	.....	1,994 06	7,171 73
Pilotage	.....	.....	.....	.....	.....	.....	43 00	52 00	23 00	.....	.....	.....	118 00
Towage	.....	543 00	1,068 00	180 00	174 00	2,607 00	780 00	780 00	360 00	.....	.....	.....	6,492 00
Wharfage	31 00	15 00	.....	25 00	10 50	.....	.....	.....	.....	18 00	.....	24 00	123 50
Contingencies	15 59	.....	7 26	4 92	3 79	11 55	3 00	15 44	3 50	2 55	.....	9 70	77 30
Totals	1,259 01	4,515 80	2,857 29	2,144 69	1,981 52	6,163 26	2,413 26	2,047 79	1,829 73	582 48	467 00	3,078 50	29,340 33
Working expenses	462 94	1,797 30	2,857 29	1,974 20	1,981 52	4,205 98	2,413 26	2,047 79	1,829 73	Nil.	Nil.	Nil.	19,570 01
Repairs, ordinary	121 40	29 29	Nil.	142 08	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	3,078 50	3,371 27
" extraordinary	674 67	2,689 21	Nil.	28 41	Nil.	1,957 28	Nil.	Nil.	Nil.	582 48	467 00	Nil.	6,399 05
Totals	1,259 01	4,515 80	2,857 29	2,144 69	1,981 52	6,163 26	2,413 26	2,047 79	1,829 73	582 48	467 00	3,078 50	29,340 33

CLASSIFICATION OF DISBURSEMENTS of the Dredges, during the Year ending March 31, 1911.

DREDGE 'GEO. McKENZIE' (N.S.)

Items.	April.	May.	June.	July.	August.	September	October.	November	December	January.	February.	March.	Grand Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts	$ cts.	$ cts.
Wages	382 57	474 54	457 97	.....	.....	.....	.....	474 77	439 46	406 16	280 00	421 11	3,336 58
Coal	56 25	59 75	58 13	.....	.....	.....	.....	68 25	41 76	52 48	.....	22 00	358 62
Provisions	86 75	109 20	194 38	.....	.....	.....	.....	15 17	109 52	86 34	.....	203 58	804 94
Stores	108 35	7 50	2 86	17 30	.....	.....	.....	.....	.....	.....	.....	4 72	140 73
Equipment	.....	.....	142 80	30 00	25 74	.....	.....	.....	.....	.....	.....	15 81	214 35
Water	.....	6 00	26 10	.....	.....	.....	.....	.....	.....	.....	.....	6 00	38 10
Repairs	928 68	72 10	837 59	.....	.....	.....	281 00	48 19	.....	2,322 06	18 53	80 81	4,588 96
Pilotage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Towage	1,155 90	.....	1,900 00	.....	15 00	.....	.....	.....	.....	.....	.....	.....	3,070 90
Wharfage	10 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 00
Contingencies	25 48	.....	.....	10 30	8 75	.....	.....	.....	.....	40 63	.....	12 65	97 81
Totals	2,753 98	729 09	3,619 83	57 60	49 49	Nil.	281 00	606 38	590 74	2,907 67	298 53	766 68	11,660 99
Working expenses	1,442 73	656 99	2,782 24	57 60	49 49	Nil.	Nil.	558 19	590 74	531 57	Nil.	Nil.	6,669 55
Repairs, ordinary	Nil.	Nil.	157 59	Nil.	Nil.	Nil.	Nil.	48 19	Nil.	Nil.	Nil.	345 57	551 35
" extraordinary	1,311 25	72 10	680 00	Nil.	Nil.	Nil.	281 00	Nil.	Nil.	2,376 10	298 53	421 11	5,440 09
Totals	2,753 98	729 09	3,619 83	57 60	49 49	Nil.	281 00	606 38	590 74	2,907 67	298 53	766 68	12,660 99

DREDGE "CAPE BRETON."

Wages	651 28	613 74	759 31	749 23	967 91	922 29	893 35	818 91	702 64	237 25	568 12	538 12	8,442 15
Coal	.....	68 00	.....	66 00	213 75	.....	218 75	.....	94 25	.....	.....	.....	660 75
Provisions	302 33	249 19	290 02	277 24	425 21	326 04	314 13	237 73	365 19	9 63	.....	255 94	3,052 65
Stores	135 11	31 06	.....	35 99	.....	.....	.....	.....	.....	.....	.....	454 61	657 77
Equipment	.....	.....	.....	290 68	.....	116 75	.....	48 42	.....	.....	.....	.....	455 85
Water	.....	.....	31 40	.....	.....	.....	.....	30 00	20 00	.....	.....	.....	81 40
Repairs	4,069 59	463 48	558 22	1,403 13	.....	4,164 04	1,541 75	.....	1,293 40	63 89	.....	1,755 64	15,313 14
Pilotage	.....	.....	.....	.....	51 00	49 13	47 66	.....	10 00	.....	.....	.....	157 79
Towage	540 00	1,755 00	2,498 50	1,971 50	3,006 00	2,560 00	2,608 00	2,600 00	1,880 00	400 00	.....	350 00	20,169 00
Wharfage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Contingencies	28 52	29 34	30 70	19 87	7 14	15 90	42 70	1 20	9 04	13 82	.....	38 25	239 48
Totals	5,726 83	3,210 81	4,168 15	4,813 64	4,671 01	8,154 15	5,666 34	3,739 26	4,374 52	724 59	568 12	3,392 56	49,209 98
Working expenses	939 55	2,734 50	3,609 93	3,410 51	4,671 01	3,990 11	4,124 59	3,739 26	3,018 12	423 45	15 00	Nil.	30,739 03
Repairs, ordinary	Nil.	Nil.	Nil.	Nil.	Nil.	67 00	Nil.	Nil.	50 00	63 89	Nil.	3,392 56	3,573 45
" extraordinary	4,787 28	476 31	558 22	1,403 13	Nil.	4,097 04	1,541 75	Nil.	1,243 40	237 25	553 12	Nil.	14,897 50
Totals	5,726 83	3,210 81	4,168 15	4,813 64	4,671 01	8,154 15	5,666 34	3,739 26	4,374 52	724 59	568 12	3,392 56	49,209 98

DREDGE 'NORTHUMBERLAND'.

Wages	724 72	1,187 09	1,546 43	1,252 84	1,250 00	1,452 18	1,262 50	1,254 94	972 17	409 11	583 95	587 42	12,483 35
Coal	414 00	826 85	1,026 26	1,439 83	1,244 30	815 60	346 53	420 33	137 51	.....	.....	.....	6,671 21
Provisions	347 76	355 79	404 99	226 78	629 35	745 28	613 49	472 81	375 46	52 96	135 00	210 98	4,570 65
Stores	394 00	112 39	34 78	272 06	91 68	89 25	183 30	245 09	46 14	57 90	.....	290 95	1,817 54
Equipment	857 68	840 00	696 00	116 25	.....	297 03	49 50	175 18	69 49	826 41	.....	.....	3,927 54
Water	219 00	273 00	210 00	315 00	451 50	367 50	199 50	304 50	73 50	.....	.....	.....	2,413 50
Repairs	1,289 43	68 34	176 03	842 51	44 04	427 37	365 16	95 26	.....	3,790 62	.....	7,045 59	14,144 35
Pilotage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Towage	40 00	.....	.....	.....	.....	.....	.....	195 00	.....	.....	.....	.....	235 00
Wharfage	15 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15 00
Contingencies	222 42	8 72	3 66	28 44	39 38	12 91	43 05	63 13	.....	136 65	.....	26 25	584 61
Totals	4,524 01	3,672 18	4,098 15	4,493 71	3,750 25	4,207 12	3,063 03	3,226 24	1,674 27	5,273 65	718 95	2,161 19	46,862 75
Working Expenses	2,213 34	3,603 84	3,922 12	3,651 20	3,706 21	3,779 75	2,697 87	3,130 98	1,674 27	473 07	Nil.	Nil.	28,852 65
Repairs, Ordinary	272 12	68 34	135 62	496 34	44 04	427 37	Nil.	95 26	Nil.	Nil.	Nil.	8,161 19	9,700 28
" Extraordinary	2,038 55	Nil.	40 41	346 17	Nil.	Nil.	365 16	Nil.	Nil.	4,800 58	718 95	Nil.	8,309 82
Totals	4,544 01	3,672 18	4,098 15	4,493 71	3,750 25	4,207 12	3,063 03	3,226 24	1,674 27	5,273 65	718 95	8,161 19	45,862 75

CLASSIFICATION OF DISBURSEMENTS of the Dredges during the Year ending March 31, 1911.

TUG "RONA" N. S.

Items.	April.	May.	June.	July.	August.	September	October.	November	December	January.	Febuary.	March.	Grand Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	249 92	255 00	255 00	.....	.....	.....	.....	255 00	255 00	255 00	195 00	210 85	1,930 77
Coal	74 50	35 50	20 12	.....	.....	22 50	.....	19 01	45 34	48 75	.....	24 38	290 10
Provisions	114 82	90 81	96 73	22 88	.....	.....	.....	20 57	93 49	99 33	.....	127 42	666 05
Stores	.....	68	.....	50 26	.....	12 72	.....	.....	.....	.....	.....	.....	63 66
Equipment	61 43	.....	.....	31 12	.....	24 00	.....	.....	.....	.....	.....	.....	116 55
Water	.....	.....	.....	6 00	.....	.....	.....	.....	.....	.....	.....	.....	6 00
Repairs	517 78	.....	.....	.....	.....	.....	.....	.....	.....	.....	13 20	176 96	707 94
Pilotage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Towage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wharfage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Contingencies	.....	.....	4 71	.....	.....	.....	.....	.....	3 07	.....	.....	4 00	11 78
Totals	1,018 45	381 99	376 56	110 26	Nil.	59 22	Nil.	294 58	396 90	403 08	208 20	543 61	3,792 85
Working Expenses	250 75	381 99	376 56	110 26	Nil.	59 22	Nil.	294 58	396 90	403 08	Nil.	Nil.	2,273 34
Repairs, Ordinary	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	543 61	543 61
" Extraordinary	767 70	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	208 20	Nil.	975 90
Totals	1,018 45	381 99	376 56	110 26	Nil.	59 22	Nil.	294 58	396 90	403 08	208 20	543 61	3,792 85

TUG "RONA," N. B.

Wages				255 00	301 13	301 13	255 00						1,112 26
Coal								32 88					32 88
Provisions				50 17	85 43	74 81	69 43	69 17					349 01
Stores													
Equipment					19 35								19 35
Water													
Repairs					39 30	11 50							50 80
Pilotage													
Towage													
Wharfage													
Contingencies						8 33							8 33
Total				305 17	445 21	395 87	324 43	102 05					1,572 63
Working Expenses				305 17	405 91	384 27	324 43	102 05					1,521 83
Repairs, Ordinary				Nil.	Nil.	11 50	Nil.	Nil.					11 50
" Extraordinary				Nil.	39 30	Nil.	Nil.	Nil.					39 30
Totals				305 17	445 21	395 77	324 43	102 05					1,572 63

CLASSIFICATION AND QUANTITIES of material removed by Dredges during the Year ending March 31, 1911.

'ST. LAWRENCE.'

Description of Material Dredged.	April.	May.	June.	July.	August.	September	October.	November	December	January.	February.	March.	Grand Total.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Hard-pan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boulders	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gravel	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clay	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clay and stone	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sand, ordinary	.....	.....	11,970	19,950	22,260	33,600	19,530	6,300	.....	.....	.....	.....	113,610
Sand, very fine	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mud	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals	Nil.	Nil.	11,970	19,950	22,260	33,600	19,530	6,300	Nil.	Nil.	Nil.	Nil.	113,610

'PRINCE EDWARD.'

Hard-pan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boulders	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mud and shells	.....	.....	.....	2,497	.....	.....	.....	.....	.....	.....	.....	.....	2,497
Clay, rock and mud	.....	3,915	.....	.....	.....	2,250	2,565	4,725	.....	.....	.....	.....	13,455
Clay and stone, brick	1,260	.....	.....	.....	.....	.....	.....	.....	810	.....	.....	.....	2,070
Sand, ordinary, mud	.....	.....	.....	.....	7,425	.....	.....	.....	.....	.....	.....	.....	7,425
Rock	.....	.....	1,192	.....	.....	945	.....	.....	.....	.....	.....	.....	2,137
Mud	.....	.....	1,035	1,350	.....	2,250	.....	.....	.....	.....	.....	.....	4,635
Totals	1,260	3,915	2,227	3,847	7,425	5,445	2,565	4,725	810	Nil.	Nil.	Nil.	32,219

'GEO. McKENZIE.'

Hard-pan													
Boulders													
Shells, Mud				4,565		7,125							11,690
Clay and shells					5,330								5,330
Clay and stone													
Sand, ordinary													
Sand, very fine													
Mud					1,790	3,800	3,725	1,095					10,410
Totals	Nil.	Nil.	Nil.	4,565	7,120	10,925	3,725	1,095	Nil.	Nil.	Nil.	Nil.	27,430

'NEW BRUNSWICK.'

Hard-pan													
Boulders and clay						1,600	300						1,900
Gravel													
Clay and mud				1,710	8,650	8,800		4,820					23,980
Clay and stone, brick			12,345	6,110	1,200	1,550	600						21,805
Sand, mud and clay							6,930	6,400					13,330
Sand, very fine													
Mud			1,550				4,400	800	4,700				11,450
Totals	Nil.	Nil.	13,895	7,820	9,850	11,950	12,230	12,020	4,700	Nil.	Nil.	Nil.	72,465

'W. S. FIELDING.'

Hard-pan													
Boulders, stone, gravel								8,400					8,400
Gravel and mud					30,600	25,500		3,450					59,550
Clay, stone, mud							1,500		9,300				10,800
Stone, gravel						6,450	24,900	4,950					36,300
Sand, ordinary, & mud		34,050	82,250	29,700	6,300								152,300
Sand, very fine		19,900					450						20,350
Mud	52,020			65,150	26,850	27,150	2,100						173,270
Totals	52,020	53,950	82,250	94,850	63,750	59,100	28,950	16,800	9,300	Nil.	Nil.	Nil.	460,970

CLASSIFICATION and Quantities of Material removed by Dredges during the Year ending March 31, 1911.

'MONTAGUE.'

Description of Material Dredged.	April.	May.	June.	July.	August.	September	October.	November	December.	January.	February.	March.	Grand Total.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Hard-pan	...	...	...	...	...	...	...	...	...	...	...	...	...
Boulders	...	...	...	...	...	...	420	...	1,920	...	...	...	2,340
Gravel	...	...	...	...	...	...	...	...	...	...	...	...	...
Clay and mud	2,700	6,600	7,300	6,850	13,665	...	7,165	400	...	...	...	...	44,680
Stone and mud	...	...	...	...	980	1,890	...	1,080	...	...	...	...	3,950
Sand, ordinary	...	...	...	...	...	...	...	...	...	...	...	...	...
Sand, very fine, & mud	...	...	...	...	...	3,920	...	...	2,680	...	...	...	6,600
Mud	...	3,000	12,850	5,000	...	...	4,320	8,660	...	...	...	...	33,830
Totals	2,700	9,600	20,150	11,850	14,645	5,810	11,905	10,140	4,600	Nil.	Nil.	Nil.	91,400

'NEREUS.'

Hard-pan	...	...	...	...	...	...	...	...	...	...	...	...	...
Boulders	...	...	...	...	...	...	...	...	...	...	...	...	...
Gravel and sand	...	...	...	3,150	...	...	...	...	...	...	...	...	3,150
Clay	...	...	...	...	...	...	...	...	...	...	...	...	...
Clay and stone	...	...	...	...	...	...	...	...	...	...	...	...	...
Sand, ordinary, gravel and stone	...	...	...	...	...	...	...	...	...	...	...	...	...
Sand, very fine	...	...	...	...	32,400	...	...	...	...	...	...	...	32,400
Mud, sand and gravel	...	...	...	...	...	25,200	19,300	7,000	...	...	...	...	51,500
Totals	Nil.	Nil.	Nil.	3,150	32,400	25,200	19,300	7,000	Nil.	Nil.	Nil.	Nil.	87,050

TOTAL COST OF LOCALITIES DREDGED DURING THE FISCAL YEAR ENDING MARCH 31, 1911.

Locality.	Date.	Actual Dredging Time.		Quantity.	Cost.	Cost per Cubic Yard.
		Hrs.	Min.	Yds.	$ cts.	cts.
'ST. LAWRENCE.'						
Campbellton, Traverse, Restigouche Co., N.B.	June 13 to July 11, 1910.....	137	35	17,220	4,589 13	26·65
Traverse (Oak Point) Restigouche Co., N. B.....	July 13 to Nov. 10, 1910.....	625	50	96,390	30,199 31	31·33
'PRINCE EDWARD.'						
Georgetown railway wharf, Kings Co., P.E.I.	April 20 to June 17, 1910 ...	359	45	6,367	4,237 67	66·55
Cardigan Bridge, Kings Co., P.E.I	June 28 to July 15. 1910. ...	116	30	4,882	1,484 59	30·41
Hallidays Whf., Belfast, Queens Co., P.E.I.	July 26 to Aug. 29, 1910.....	225	00	6,750	2,656 88	39 38
NineMile Creek, Queens Co., P.E.I	Aug. 30 to Nov. 30, and Dec. 1 to 10, 1910.	343	00	14,220	7,021 27	49·30
'NEW BRUNSWICK.'						
Marble Cove, St. John, St. John Co., N.B.	June 1 to 27 and Nov. 29 to 30, and Dec. 1 to 10, 1910.	261	30	17,760	3,236 33	18·22
Hilyards Blocks, St. John Co., N.B	June 28 to July 4, 1910.....	25	30	1,245	643 96	51·72
Shampers, Kings Co. " "	July 5 to 13, 1910.....	54	30	1,700	832 43	48·94
Grassy Island " N. B	July 14 to Sept 26, 1910.....	392	00	25,910	7,382 72	28·30
Jenkins Cove " "	Sept. 27 to Oct. 1, 1910 . ..	67	30	2,500	532 65	21·30
Maquapit Lake, Queens Co., N.B	Oct. 3 to Nov. 10, 1910....	264	00	17,000	3,957 81	23·28
Hatfields Point, Kings Co., N.B.	November 14, 1910	10	00	500	106 53	21·31
Day's Landing " "	" 15 to 25, 1910	83	00	5,850	1,187 57	20·30
'GEO. McKENZIE.'						
Port Elgin, Westmor'land Co., N.B	July 16 to Nov. 4, 1910	751	10	27,430	7,237 07	26·38
'W. S. FIELDING.'						
Harbor Channel, St. John, St. John Co., N.B.	April 11 to Nov. 24 and Dec. 1 to 21, 1910.	775	42	460,970	84,245 51	18·27
'MONTAGUE.'						
Summerside, Prince Co., P.E.I.	April 18 to June 3. and July 18 to Aug. 27, 1910.	450	30	29,615	7,215 18	24·36
Bedeque " "	June 4 to July 16, 1910.....	248	00	28,350	3,955 26	13·95
Railway Whf., Summerside, Prince Co., P. E. I.	Aug. 29 to Sept. 10, and Oct. 3 to Nov. 5, 1910.	198	30	14,345	3,807 98	27 23
Holman Wharf, Prince Co., P.E.I.	Sept. 12 to Oct 1. 1910.....	80	00	5,390	1,526 75	28·33
Marine Wharf, Charlottetown, Queens Co., P. E. I.	Nov. 7 to 30, and Dec. 2 to 15, 1910.	188	01	13,700	2,141 93	15·78
'NEREUS.'						
Bathurst, Outside Bar, Gloucester Co., N.B.	July 27 to Nov. 9, 1910.....	572	00	87,050	13,619 84	15·65

MEMORANDUM OF QUANTITIES REMOVED BY THE SEVERAL DREDGES IN THE PROVINCES OF NEW BRUNSWICK AND PRINCE EDWARD ISLAND, DURING THE FISCAL YEAR, 1910-11.

	Cubic yards.
St. Lawrence	113,610
Prince Edward	32,219
Geo. McKenzie	27,430
New Brunswick	72,465
W. S. Fielding	460,970
Montague	91,400
Restigouche	87,050
Total	885,144

EXPENDITURE for Dredging in New Brunswick for the Thirty-nine Years ended March 31, 1911.

County.	Locality.	For the Thirty-eight Years ended March 31, 1910.			For the Year 1910-11.			Total Quantity.	Total Cost.	Cost for each County
		Quantity.	Cost.	Cost for County.	Quantity.	Cost.	Cost for County.			
		Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.	Cubic yards	$ cts.	$ cts.
Charlotte	St. Andrews	111,270	24,432 50					111,270	24,432 50	
	" New Wharf	38,637	11,103 73					38,637	11,103 73	
	" Basin East Entrance	97,042	19,557 59					97,042	19,557 59	
	St. George	12 720	5,593 97					12,720	5,593 97	
	Le Etete	4,145	1,187 27					4,145	1,187 27	
	Black Harbour	2,055	1,075 12					2,055	1,075 12	
	Leonardville	22,262	4,009 48	66,959 66				22,262	4,009 48	66,959 66
Gloucester	Bathurst	98,637	29,095 79		87,050	13,619 84		185,687	42,715 63	
	Caraquet	16,485	6,312 23					16,485	6,312 23	
	Shippegan	88,954	33,480 54	68,888 56			13,619 84	88,954	33,480 54	82,508 40
Kent	Richibucto	172,778	53,544 01					172,778	53,544 01	
	Cocagne	27,180	9,601 45					27,180	9,601 45	
	Buctouche	13,005	4,934 24					13,005	4,934 24	
	" Priest's Point	3,510	1,110 70					3,510	1,110 70	
	" Chapel	4,140	1,310 07					4,140	1,310 07	
	" Robertson's Wharf	45	14 23	70,514 70				45	14 23	70,514 70
Kings	Belle Isle	147,655	21,401 67					147,655	21,401 67	
	Kennebecasis River	116,270	20,081 83					116,270	20,081 83	
	Moss Glen	10,970	2,092 36					10,970	2,092 36	
	Westfield	1,300	362 19					1,300	362 19	
	Glenwood Wharf	28,600	2,147 77					28,600	2,147 77	
	Shamper's Wharf	81,685	10,262 95		1,700	832 43		83,385	11,095 38	
	Jenkin's Wharf	27,520	4,008 89		2,500	532 65		30,020	4,541 54	
	Cedars	29,700	1,948 64					29,700	1,948 64	
	Evandale	75	67 18					75	67 18	
	Oak Point	12,100	1,979 05					12,100	1,979 05	
	Victoria Wharf	21,700	2,448 40					21,700	2,448 40	
	Long Island	5,380	2,041 57					5,380	2,041 57	
	Flewelling Wharf	1,400	413 15					1,400	413 15	
	Reid's Point	980	455 56					980	455 56	
	Clifton Wharf	720	285 73					720	285 73	
	Whitehead	2,500	401 78					2,500	401 78	
	Murphy (Perry Point)	9,050	950 02					9,050	950 02	
	Sealy Shoal	34,615	4,872 18					34,615	4,872 18	
	Hampton	30,280	4,938 27					30,280	4,938 27	

EXPENDITURE for Dredging in New Brunswick for the Thirty-nine Years ended March 31, 1911—*Continued.*

County.	Locality.	For the Thirty-nine Years ended March 31, 1910.			For the Year 1910-11.			Total Quantity.	Total Cost.	Cost for each County
		Quantity.	Cost.	Cost for County.	Quantity.	Cost.	Cost for County.			
		Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.
	Rothesay	130	22 66					130	22 66	
	Wanamakers	1,050	196 55					1,050	196 55	
	Hatfield's Point				500	106 53		500	106 53	
	Day's Landing				5,850	1,187 57		5,850	1,187 57	
	Grassy Island			81,648 40	25,910	7,382 72	10,041 90	25,910	7,382 72	91,690 30
Northumberland	Horse Shoe, Miramichi	208,892	55,058 36					208,892	55,058 36	
	Outer Bar	29,935	7,965 31					29,935	7,965 31	
	Grand Dune	37,975	10,121 67					37,975	10,121 67	
	Gordan Flats	22,425	4,403 95					22,425	4,403 95	
	Neguac	6,300	6,969 76					6,300	6,969 76	
	Loggieville	13,201	4,888 04	89,407 09				13,201	4,888 04	89,407 09
Queens	Grand Lake	215,032	30,085 41					215,032	30,085 41	
	" McNair's Cove	20,440	4,522 82					20,440	4,522 82	
	Jemseg	87,230	17,190 06					87,230	17,190 06	
	Washademoak	65,675	8,073 65					65,675	8,073 65	
	" Cambridge Wharf	2,900	1,073 31					2,900	1,073 31	
	" Ackerley's Wharf	4,840	995 20					4,840	995 20	
	" Huestis Wharf	270	212 72					270	212 72	
	" Webster's Wharf	5,000	764 58					5,000	764 58	
	" Robertson's Wharf	5,750	422 14					5,750	422 14	
	Colwell's Creek	8,290	2,557 52					8,290	2,557 52	
	Grimross, Middle Ground	12,040	3,274 99					12,040	3,274 99	
	Gagetown Creek Canal	45,935	7,739 97					45,935	7,739 97	
	Spoon Island	9,315	1,192 36					9,315	1,192 36	
	Ward's Shoal, Salmon River	46,625	4,993 59					46,625	4,993 59	
	Curley Shoal	36,625	3,369 16					36,625	3,369 16	
	Chipman & Briggs Corner	104,275	12,269 49					104,275	12,269 49	
	Upper Gagetown Wharf	1,700	1,104 90					1,700	1,104 90	
	McClure Shoal	39,525	4,556 66					39,525	4,556 66	
	Queens Coal Co., Newcastle	14,475	1,335 06					14,475	1,335 06	
	Hampstead	1,200	401 36					1,200	401 36	
	Belyea's Wharf	1,865	609 25					1,865	609 25	
	Maquapit Lake			106,744 20	17,000	3,957 81	3,957 81	17,000	3,957 81	110,702 01

Restigouche	Dalhousie	22,301	6,543 08					22,301	6,543 08	
	" McManus contract	13,336	1,825 67					13,336	1,825 67	
	" Railway Wharf	8,460	1,203 48					8,460	1,203 48	
	" Ferry Landing	12,992	3,632 33					12,992	3,632 33	
	" Hilyards	19,250	4,846 50					19,250	4,846 50	
	Traverse	183,155	43,573 57		96,390	30,199 31		279,545	73,772 88	
	" Oak Bay	219,870	2,724 10					219,870	2,724 10	
	Campbellton, Gov't. Wharf	41,695	21,121 09		17,220	4,589 13		58,915	25,710 22	
	" Contract	9,800	2,254 11					9,800	2,254 11	
	" Basin	18,375	10,354 33	98,078 26			34,788 44	18,375	10,354 33	132,866 70
St. John	I.C.R. Terminus	212,224	52,633 18					212,224	52,633 18	
	Navy Island	39,899	13,361 95					39,899	13,361 95	
	Marble Cove	29,925	4,374 40		17,760	3,236 23		47,685	7,610 73	
	Murray Mills	27,555	3,681 41					27,555	3,681 41	
	Indiantown Wharf	1,615	192 83					1,615	192 83	
	Long Wharf	7,137	2,680 24					7,137	2,680 24	
	Miller and Woodman's	9,275	1,090 42					9,275	1,090 42	
	Hayford and Stetson	8,015	942 29					8,015	942 29	
	Indiantown Wharf	450	52 90					450	52 90	
	Adam's Wharf	7,315	3,247 29					7,315	3,247 29	
	Anchor Line	4,695	996 81					4,695	996 81	
	Dominion Atlantic Wharf	15,525	4,484 72					15,525	4,484 72	
	St. John Winter Berths	496,378	102,105 83					496,378	102,105 83	
	" Harbour Channel	714,108	140,840 12		460,970	84,245 51		1,175,078	225,085 63	
	Purves and Murchie Mills	675	142 57					675	142 57	
	McAvity's Wharf	4,110	606 88					4,110	606 88	
	Lawton Wharf	1,570	101 46					1,570	101 46	
	Thorne Wharf	1,980	249 02					1,980	249 02	
	Maritime Nail Works	1,425	224 52					1,425	324 52	
	Cushing's Mills	33,150	2,222 69					33,150	2,222 69	
	Hillyard Bros	1,400	314 10		1,245	643 96		2,645	958 06	
	Kennebecasis River	2,025	604 37					2,025	604 37	
	Partridge Island	4,650	2,294 22					4,650	2,294 22	
	" Channel for water pipe	8,215	5,173 82	342,618 04			88,125 80	8,215	5,173 82	430,743 84
Sunbury	Oromocto	401,572	67,827 26					401,572	67,827 26	
	McClean Wharf	625	181 59					625	181 59	
	Ox Island	51,800	5,266 50					51,800	5,266 50	
	French Lake	25,475	3,787 49					25,475	3,787 49	
	Bents Wharf, Maugerville	2 310	428 44					2,310	428 44	
	Upper Sheffield	3,830	425 15	77,916 33				3,830	425 15	77,916 43
Westmorland	Point Du Chene	182,980	42,162 18					182,980	42,162 18	
	Cape Tormentine	35,120	9,004 92					35,120	9,004 92	
	Port Elgin	3,465	1,851 66	53,018 86	27,430	7,237 07	7,237 07	30,895	9,088 83	60,255 93
York	Fredericton	126,365	21,679 06					126,365	21,679 06	
	St. Mary's Ferry	15,570	6,827 36					15,570	6,827 36	
	Gibson	30,395	4,379 52					30,395	4,379 52	
	Naashwaak	1,600	435 22					1,600	435 22	
	Fisher and Chestnut Shoals	8,200	5,547 12					8,200	1,547 12	
	Canada Eastern Ry. Wharf	3,770	1,013 98					3,770	1,013 98	
	Springhill, Chapel and Russell Bars	96,295	24,386 78					96,295		

EXPENDITURE for Dredging in New Brunswick for the Thirty-nine Years ended March 31, 1911.

County.	Locality.	For the Thirty-eight Years ended March 31, 1910.			For the Year 1910-11.			Total Quantity.	Total Cost.	Cost for each County
		Quantity.	Cost.	Cost for County.	Quantity.	Cost.	Cost for county.			
		Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.
	Robertson's Bar	6,965	1,717 16	.....	.....	.....	.....	6,965	1,717 16	24,386 78
	Douglas Booms	14,235	1,512 87	63,499 07	.....	.....	.....	14,235	1,512 87	63,490 07
	N. B. Equipment	.....	1,591 12	1,591 12	.....	.....	.....	.....	1,591 12	1,591 12
	"New Dominion" dismantling and care of Plant	.....	.....	.....	.....	.....	.....	.....	1,609 32	1,609 32
		5,341,853	1,120,884 39	1,120,884 39	761,525	157,770 86	157,770 86	6,103,378	1,280,264 57	1,280,264 57

EXPENDITURE for Dredging in Prince Edward Island for the Thirty-nine years ended March 31, 1911.

Kings	Grand River	83,870	19,333 34	.....	.....	.....	.....	83,870	19,333 34	
	Montague River	182,295	36,547 47	.....	.....	.....	.....	182,295	36,547 47	
	Murray Harbour South	105,903	20,140 56	.....	.....	.....	.....	105,903	20,140 56	
	Sturgeon	16,026	6,066 27	.....	.....	.....	.....	16,026	6,066 27	
	St. Mary's Wharf	29,963	4,752 55	.....	.....	.....	.....	29,963	4,752 55	
	Georgetown Railway Wharf	3,409	2,357 46	.....	6,367	4,237 67	.....	9,776	6,595 13	
	" Queens	2,205	1,328 80	.....	.....	.....	.....	2,205	1,328 80	
	Cardigan Bridge	35,955	8,619 36	.....	4,882	1,484 59	.....	40,837	10,103 95	
	Newport	3,240	917 82	.....	.....	.....	.....	3,240	917 82	
	Souris	74,325	23,699 16	.....	.....	.....	.....	74,325	23,699 16	
	Murry River	70,997	21,736 52	.....	.....	.....	.....	70,997	21,736 52	
	" Railway	5,926	1,860 30	.....	.....	.....	.....	5,926	1,860 30	
	Morell	43,335	11,972 59	.....	.....	.....	.....	43,335	11,972 59	
Queens	Annandale Public Wharf	11,800	3,809 47	163,141 67	.....	.....	5,722 26	11,800	3,809 47	168,863 93
	Charlottetown Railway Wharf	125,391	33,956 60	.....	.....	.....	.....	125,391	33,956 60	
	" Pownal	68,620	18,146 48	.....	.....	.....	.....	68,620	18,146 48	
	" Ferry	10,075	2,006 99	.....	.....	.....	.....	10,075	2,006 99	
	" Steam Nav. Co.	19,818	7,581 23	.....	.....	.....	.....	19,818	7,581 23	
	" Connolly Wharf	9,978	4,409 68	.....	.....	.....	.....	9,978	4,409 68	
	" Peake Bros.	13,995	5,856 02	.....	.....	.....	.....	13,995	5,856 02	
	" Queen St., Slip	3,915	1,109 03	.....	.....	.....	.....	3,915	1,109 03	
	" Geo. Peak's Wharf	6,885	2,232 03	.....	.....	.....	.....	6,885	2,232 03	

	" Pools Wharf	12,240	1,609 95					12,240	1,609 95	
	" McMillan Wharf	6,615	1,320 13					6,615	1,320 13	
	" Dom. Bldgs Sewer	5,355	1,146 68					5,355	1,146 68	
	" Pub. Bldg. Sewer	2,880	679 12					2,880	679 12	
	" Geo. Full's Wharf	11,550	3,001 96					11,550	3,001 96	
	" Carvell Bros.	2,880	798 04					2,880	798 04	
	" Falconwood Asylum Wharf	27,540	7,864 45					27,540	7,864 45	
	Websters Corner, East River	203	43 47					203	43 47	
	Crapaud, Victoria	184,250	60,664 84					184,250	60,664 84	
	Pownal Bay	43,465	10,380 28					43,465	10,380 28	
	Rock Point	82,920	13,426 13					82,920	13,426 13	
	Vernon River	32,710	11,301 95					32,710	11,301 95	
	Wood islands	8,405	11,801 57					8,405	11,801 57	
	Nine Mile Creek	31,650	6,286 46		14,220	7,021 27		45,870	13,307 73	
	Hickey Wharf	750	150 51					750	150 51	
	Carrs Point	12,165	2,441 28					12,165	2,441 28	
	Pinette	19,325	5,540 37					19,325	5,540 37	
	Fort Augustus	3,195	631 68					3,195	631 68	
	Southport Ferry	45,300	7,508 75					45,300	7,508 75	
	Red Point	7,161	3,879 60					7,161	3,879 60	
	North Rustico	13,536	4,775 38					13,536	4,775 38	
	South Rustico	11,649	4,109 67					11,649	4,109 67	
	Gauthiers Creek	17,847	8,305 50					17,847	8,305 50	
	Malpeque	28,575	3,483 32					28,575	3,483 32	
	French River	41,671	13,311 46					41,671	13,311 46	
	Bay View	4,095	1,912 87					4,095	1,912 87	
	Wedlocks	1,260	520 48					1,260	520 48	
	Belfast, Hallidays Wharf	15,435	4,468 78		6,750	2,656 88		22,185	7,125 66	
	Marine & Fisheries Wharf	13,455	5,051 96		13,700	2,141 93		27,155	7,193 89	
	Peake & Queens Dock	4,860	1,586 60	273,281 30			11,820 08	4,860	1,586 60	285,101 38
Prince	Summerside	127,021	37,132 89		29,615	7,215 18		156,636	44,348 07	
	Hurds Point Pier	65,505	14,315 49					65,505	14,315 49	
	Tignish	11,387	13,005 45					11,387	13,005 45	
	Cascumpec	1,157	538 42					1,157	538 42	
	Cape Traverse	16,740	5,105 89					16,740	5,105 89	
	Holmans Wharf	9,585	1,269 21		5,390	1,526 75		14,975	2,795 96	
	Bedeque				28,350	3,955 26		28,350	3,955 26	
	Railway Wharf			71,367 33	14,345	3,807 98	16,505 17	14,345	3,807 98	87,872 50
		1,844,813	507,790 30	507,790 30	123,619	34,047 51	34,047 51	1,968,432	541,837 81	541,837 81

EXPENDITURE for Dredging in Quebec for the Thirty-nine years ended March 31, 1911.

From Appropriation Maritime Provinces.

County.	Locality.	For the Thirty-eight Year ended March 31, 1910.			For the year 1910-1911.			Total Quantity.	Total Cost.	Cost for each County.
		Quantity.	Cost.	Cost for County.	Quantity.	Cost.	Cost for County.			
		Cub. yds.	$ cts.	$ cts.	Cub. yds.	$ cts.	$ cts.	Cub. yds.	$ cts.	$ cts.
Magdalen Isl'nds Co. Gaspé.	House Harbor	6,800	2,392 92					6,800	2,392 92	
" "	Amherst Harbor	495	242 05	2,637 97				495	242 05	2,634 97
Temiscouata	River du Loup	2,587	825 47	825 47				2,587	825 47	825 47
Rimouski	Rimouski	8,123	3,997 59	3,997 89				8,123	3,997 59	3,997 59
Bonaventure	Mission Point	17,010	7,465 70	2,935 76				17,010	7,465 70	2,935 76
"	Bar between Mission Point & Campbellton	7,770	3,325 80	7,755 74				7,770	3,225 80	7,755 74
		42,785	18,149 53	18,149 53				42,785	18,149 53	18,149 53

TOTAL cost at localities dredged in New Brunswick and Prince Edward Island during the Fiscal Year ending March 31, 1911.

Dredge.	Locality.	Date.	Annual Time Dredging.		Quantity.	Cost.		Cost per Cubic yard.	
			Hrs.	Min.	C. yds.	$	cts.	$	cts.
St. Lawrence...	Campbellton, Traverse, Restigouche, Co., N.B.	June 13 to July 11, 1910	137	35	17,220	4,589	13	0 26	65
"	Traverse, (Oak Point) " " .	July 13 to Nov. 10, 1910	625	50	96,390	30,199	31	0 31	33
Prince Edward..	Georgetown Railway Wharf, King's Co., P.E.I.	April 20 to June 17, 1910	359	45	6,367	4,237	67	0 66	55
" ..	Cardigan Bridge, King's Co., P.E.I	June 28 to July 15, 1910	116	30	4,882	1,484	59	0 30	41
" ..	Hallidays Wharf, Belfast, Queen's Co., P.E.I..	July 26 to August 29, 1910	225	00	6,750	2,656	88	0 39	38
" ..	Nine Mile Creek, Queen's Co., P.E.I	August 30 to Nov. 30, and Dec. 1 to 10, 1910...	343	00	14,220	7,021	27	0 49	30
New Brunswick.	Marble Cove, St. John, St. John, Co., N.B ...	June 1 to 27, and Nov. 29 to 30, and Dec. 1 to 10, 1910	261	30	17,760	3,236	33	0 18	22
" .	Hilyards Blocks " " "	June 28 to July 4, 1910	25	30	1,245	643	96	0 51	72
" .	Shampers, King's Co., N.B	July 5 to 13, 1910	54	30	1,700	832	43	0 48	94
" .	Grassy Island, King's Co., N.B	July 14 to September 26, 1910	392	00	25,910	7,382	72	0 28	30
" .	Jenkins Cove " "	September 27 to October 1, 1910	67	30	2,500	532	65	0 21	30
" .	Maquapit Lake " "	October 3 to November 10, 1910	264	00	17,000	3,957	81	0 23	28
" .	Hatfields Point " "	November 14, 1910	10	00	500	106	53	0 21	31
" .	Days Landing " "	November 15 to 25, 1910	83	00	5,850	1,187	57	0 20	30
Geo, McKenzie.	Port Elgin, Westmorland Co., N.B	July 16 to November 4, 1910	751	10	27,430	7,237	07	0 26	38
Montague	Summerside, Prince Co., P.E.I	April 18 to June 3,, and July 13 to August 27, 1910	450	30	29,615	7,215	18	0 24	30
" ...	Bedeque " "	June 4 to Juiy 16, 1910	248	00	28,350	3,955	26	0 13	95
"	Railway Wharf, Summerside, Prince Co., P.E.I	August 29 to Sept. 10, and Oct. 3 to Nov. 5, 1910	198	30	14,345	3,807	98	0 27	23
"	Holmans Wharf " " " .	September 12 to October 1, 1910	80	00	5,390	1,526	75	0 28	33
"	Marine Wharf, Charlottetown, Queen's Co., " .	November 7 to 30, and Dec. 2 to 15, 1910	188	01	13,700	2,141	93	0 15	78
W. S. Fielding..	Harbour Channel, St. John, St. John Co., N.B.	April 11 to Nov. 24, and Dec. 1 to 21, 1910...	775	42	460,970	84,245	51	0 18	27
Nereus.....	Bathurst, Outside Bar, Gloucester Co., N.B...	July 27 to November 9, 1910	572	00	87,050	13,619	84	0 15	65
New Dominion.	Dismantling and care of plant					1,609	32		

STATEMENT of Dredging in the Maritime Provinces showing Quantities removed by and Expenditure of each Dredge during the thirty-nine Years ended March 31, 1911.

Dredge.	Total quantities and cost for Thirty-eight Years ended March 31, 1910.			For the Year 1910-11.			Total for the Thirty-nine Years ended March 31, 1911.		
	Total quantity.	Cost.	Per cubic yard.	Quantity.	Cost.	Per cubic yard.	Total quantity.	Total cost.	Cost per cubic yard.
	Cub. yds.	$ cts.	$ cts.	Cub. yds.	$ cts.	$ cts.	Cub. yds.	$ cts.	$ cts.
St. Lawrence	1,897,694	497,430 04	0 23·87	113,610	34,788 44	0 30·62	2,011,304	532,218 48	0 26·46
Canada	.....	.....	.....	.....	.....	.....	.....	.....	.....
(Old) New Dominion	2,090,173	376,086 89	0 18·47	.....	.....	.....	2,090,173	376,086 89	0 18·47
Prince Edward	1,614,770	435,660 64	0 26·98	32,219	15,400 41	0 47·79	1,646,989	451,061 05	0 27·39
(Old) Cape Breton	.....	.....	.....	.....	.....	.....	.....	.....	.....
Geo. McKenzie	860,214	359,307 87	0 41·76	27,430	7,237 07	0 26·38	887,644	366,544 94	0 46·04
Cape Breton	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Brunswick	654,325	121,787 74	0 18·62	72,465	17,880 00	0 24·67	726,790	139,667 74	0 19·22
W. S. Fielding	1,171,510	212,582 78	0 18·09	460,970	84,245 51	0 18·27	1,632,480	296,828 29	0 18·19
Montague	193,600	48,983 23	0 20·53	91,400	18,647 10	0 20·41	285,000	67,630 33	0 23 73
Northumberland	.....	.....	.....	.....	.....	.....	.....	.....	.....
Restigouche	.....	.....	.....	87,050	13,619 84	0 15·65	87,050	13,619 84	0 15 65
Loggieville (Contract)	.....	.....	.....	.....	.....	.....	.....	.....	.....
	8,482,286	2,051,839 19	0 24·19	885,144	191,818 37	0 21.67	9,367,430	2,243,657 56	0 23 9o

STATEMENT of Dredging showing Quantities Removed in each Province and Cost of each Work for the Thirty-ninth Year ended March 31, 1911.

Fiscal Year.	New Brunswick.		Nova Scotia.		Quebec.		Prince Edward Island.		Total Quantity.	Total Expenditure	Cost per Cubic Yard.
	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.			
	Cubic yds.	$ cts,	Cubic yds.	$ cts.	Cubic yds.	$ cts.	Cubic yds,	$ cts.	Cubic yds.	$ cts.	$ cts.
1872-3	38,060	13,240 50	23,260	8,422 70	.....	.....	.....	.....	61,320	21,663 20	0 25·328
1873-4	57,725	14,395 57	18,600	6,545 61	6,800	2,392 92	.....	.....	83,125	23,334 10	0 28·710
1874-5	78,223	17,325 05	24,416	13,238 83	.....	.....	18,655	9,892 89	121,294	40,456 77	0 33 354
1875-6	79,935	17,040 52	91,975	21,855 90	.....	.....	58,283	10,891 80	230,192	49,818 22	0 21·642
1876-7	97,690	23,161 90	127,785	34,846 74	.....	.....	74,460	12,758 27	299,935	70,766 91	0 23·594
1877-8	81,070	23,323 92	106,857	29,607 94	.....	.....	82,860	12,011 18	270,787	64,943 04	0 23·983
1878-9	132,555	27,400 22	116,307	28,267 59	.....	.....	46,490	9,164 07	295,352	64,831 88	0 21·951
1879-80	63,540	16,581 79	127,684	34,765 84	765	374 08	36,380	12,674 98	228,379	64,396 69	0 28·197
1880-1	44,351	12,385 85	87,118	23,061 64	2,317	673 44	46,335	9,298 53	180,085	45,439 46	0 25·232
1881-2	79,640	18,626 87	59,566	33,363 71	.....	.....	47,325	9,356 57	216,531	61,347 15	0 28·331
1882-3	48,565	13,422 70	143,616	32,966 93	.....	.....	68,535	11,080 37	260,716	67,500 00	0 25·890
1883-4	47,058	17,103 38	157,560	49,050 58	.....	.....	79,750	13,355 05	284,368	79,509 01	0 27·957
1884-5	128,997	24,460 35	76,164	25,250 73	8,123	3,997 59	55,075	8,668 01	268,359	62,396 68	0 23 242
1885-6	68,505	14,874 63	56,790	21,482 05	.....	.....	17,137	10,349 66	142,432	46,706 34	0 32·793
1886-7	69,440	11,452 86	53,400	25,621 19	.....	.....	6,137	6,214 74	128,977	43,288 79	0 33·560
1887-8	50,152	9,252 50	84,175	29,847 60	.....	.....	3,775	5,899 90	138,102	45,000 00	0 32·580
1888-9	63,633	16,598 08	56,910	32,697 00	.....	.....	24,240	15,502 95	144,783	64,798 03	0 27·290
1889-90	86,068	20,544 93	59,783	22,821 55	.....	.....	31,422	11,085 39	177,273	54,451 87	0 30·710
1890-1	96,588	20,375 06	61,698	24,386 57	.....	.....	19,004	8,843 92	177,290	53,605 55	0 30·230
1891-2	75,023	20,592 85	81,993	27,376 08	.....	.....	31,382	12,788 34	188,398	60,757 27	0 32·249
1892-3	108,035	20,742 26	40,834	18,125 58	.....	.....	66,585	15,112 83	215,354	56,980 67	0 26·440
1893-4	77,505	21,564 27	59,581	28,664 99	.....	.....	61,536	12,269 24	198,622	62,498 50	0 31 460
1894-5	59,715	13,630 11	105,463	32,202 70	.....	.....	48,060	10,428 90	213,238	56,261 71	0 26·380
1895-6	98,905	21,352 63	36,428	15,828 89	.....	.....	36,360	10,299 93	171,693	47,481 45	0 27·650
1896-7	203,975	34,050 86	84,735	22,080 46	.....	.....	51,078	10,937 62	339,788	67,068 94	0 19·730
1897-8	187,325	27,611 17	147,085	31,497 57	.....	.....	46,710	10,701 49	381,120	69,819 23	0 18·310
1898-9	105,058	23,315 82	155,510	36,628 81	.....	.....	51,040	13,283 71	311,608	73,228 34	0 23·500
1899-1900	175,935	28,232 46	152,033	37,589 22	.....	.....	94,364	17,537 73	422,332	83,359 41	0 19·760
1900-1	205,369	32,615 29	94,557	36,141 17	.....	.....	26,020	18,984 13	325,946	87,740 59	0 26·910
1901-2	218,210	28,508 97	143,142	39,247 35	.....	.....	51,320	16,196 95	405,682	83,953 27	0 20·690
1902-3	197,207	36,195 40	134,648	32,856 93	.....	.....	55,943	16,160 33	387,798	85,212 66	0 21·970
1903-4	252,725	53,046 12	94,675	31,471 45	.....	.....	49,500	13,775 37	396,900	100,992 94	0 25·440
1904-5	193,955	46,348 89	203,460	33,359 47	.....	.....	33,030	17,123 82	430,445	96,832 18	0 22·490
1905-6	224,058	32,549 89	271,637	36,111 20	.....	.....	60,683	11,089 96	556,377	120,072 24	0 21·580

STATEMENT of Dredging showing Quantities Removed in each Province and Cost of each Work for the Thirty-ninth Year ended March 31, 1911—*Continued.*

Fiscal Year.	New Brunswick.		Nova Scotia.		Quebec.		Prince Edward Island.		Total Quantity.	Total Expenditure	Cost per Cubic Yard.
	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.			
	Cubic yds.	$ cts.	Cubic yds.	$ cts.	Cubic yds.	$ cts.	Cubic yds.	$ cts.	Cubic yds.	$ cts.	$ cts.
1906-7	120,095	31,538 51	176,321	61,284 54	.....	.....	53,615	19,047 37	350,031	111,870 42	0 31·960
1907-8	235,557	58,976 46	792,878	112,615 07	7,560	2,935 76	100,740	32,504 80	1,136,735	207,022 09	0 18·216
1908-9	519,190	120,186 39	274,439	50,117 13	17,220	7,755 74	97,730	39,801 00	908,579	217,860 26	0 23·970
1909-10	672,254	132,523 28	.....	.....	.....	.....	113,162	32,765 82	785,416	165,289 10	0 21·040
1910-1	761,525	157,770 86	.....	.....	.....	.....	123,619	34,047 51	885,144	191,818 37	0 21·670
	6,102,380	1,275,919 17	4,613,072	1,194,059 31	42,785	18,149 53	1,968,349	541,905 13	12,720,606	3,070,344 33	0 24·130

STATEMENT of Dredging showing Quantities removed by hand in each Province and cost of each Dredging for Thirty-ninth Year ended March 31, 1911.

1878-9	.....	.....	245	553 13	.....	.....	.....	.....	245	553 13	2 26·580
1879-80	.....	.....	12,370	3,666 90	.....	.....	.....	.....	12,370	3,666 90	0 29·640
1880-1	.....	.....	11,140	2,560 25	.....	.....	.....	.....	11,140	2,560 25	0 22·980
1881-2	.....	.....	10,640	2,650 00	.....	.....	.....	.....	10,640	2,650 00	0 24·900
1882-3	.....	.....	8,190	2,500 00	.....	.....	.....	.....	8,190	2,500 00	0 30·520
1883-4	.....	.....	5,460	2,500 00	.....	.....	.....	.....	5,460	2,500 00	0 45·780
1899-1900	.....	.....	343	248 71	.....	.....	.....	.....	343	248 71	0 72·510
1900-1	.....	.....	320	250 75	.....	.....	.....	.....	320	250 75	0 78·356
1902-3	.....	.....	1,645	496 83	.....	.....	.....	.....	1,645	496 83	0 30·170
	.....	.....	50,353	15,426 57	.....	.....	.....	.....	50,353	15,426 57	0 30·064

CONTRACTORS' DREDGES.

Asp; Beacon Bar; Bruiser; Cynthia; Delver; Dominion Coal Co.; Etang; Excavator; Gray Loggie; Hayward; Invador; Iroquois; King Edward; Mule; No. 1; No. 2; No. 4; Prince Louis; Prince Ito; Prince Guy; and *Peter England.*

ANNUAL Report from April 1, 1910, to March 31, 1911.

DREDGE 'ASP' OWNER, J. S. GREGORY.

Localities where Dredging was performed.	Date.		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
Oromoc'o shoals	June 1	October 22	11 feet.	63,536	19,562 33	30·78

DETAILS OF EXPENDITURE

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages			144 00	92 72	102 31	96 93	60 67				496 63
Contingencies			3,438 49	2,824 80	4,735 56	5,015 85	3,051 00				19,065 70
Totals			3,592 49	2,917 52	4,837 87	5,112 78	3,111 67				19,562 33

ANNUAL Report from April 1, 1910, to March 31, 1911.

DREDGE 'BEACON BAR' OWNER, MARITIME DREDGING AND CONSTRUCTION CO.

Localities where Dredging was performed.	Date.		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
St. John Harbour, N.B.	April 1, 1910	Feb. 4, 1911	32 feet.	147,752	60,920 15	49·94

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	246 00	268 00	220 00	295 44	353 06	348 64	236 90	101 78	103 36	217 00	2,390 18
Contingencies	7,431 89	4,994 78	107 18	6,075 18	10,362 04	8,831 77	3,463 52	6,996 64	5,006 03	5,170 94	58,529 97
Totals	7,677 89	5,262 78	417 18	6,370 62	10,715 10	9,180 41	3,700 42	7,098 42	5,109 39	5,387 94	60,920 15

ANNUAL Report from April 1, 1910, to March 31, 1911.

DREDGE 'BRUISER' OWNER, GENERAL CONSTRUCTION & DREDGING CO.

Localities where Dredging was performed.	Date.		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	$ cts.
Pointe du Chene, N.B	July 12..... ...	Dec. 1.....	17 feet.	88,959	24,366 58	·27·39 00

DETAILS OF EXPENDITURE.

——	April.	May.	June	July.	August.	September	October.	November	December	January, February, and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	... .	....	....	47 50	76 00	71 75	71 75	65 50	9 27	.....	345 90
Contingencies.....	.. ..	.....	....	2,493 58	6,059 34	6,352 02	5,180 22	3,765 96	169 56	.....	24,020 68
Totals..	.....	.....	.....	2,541 08	6,135 34	6,423 77	5,256 10	3,831 46	178 83	....	24,366 58

ANNUAL Report from April 1, 1910, to March 31, 1911.

DREDGE 'CYNTHIA' OWNER, MARITIME DREDGING AND CONSTRUCTION COMPANY.

Localities where Dredging was performed.	Date.		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	$ cts.
St. John Harbour, N.B	April 1, '10.....	Feb. 4, '11... .	32 feet.	800,193	279,272 62	34 99

DETAILS OF EXPENDITURE.

——	April.	May.	June.	July.	August.	September	October.	November	December	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages.....	214 00	243 42	290 72	324 17	357 33	234 00	348 99	198 89	207 00	235 33	2,683 85
Contingéncies.....	25,713 32	8,478 67	8,463 60	38,038 54	41,328 85	40,318 91	32,609 54	28 733 06	24,299 88	28,604 40	276,588 77
Totals.....	25,957 32	8,722 09	8,754 32	38,362 71	41,686 18	40,552 91	32,958 53	28,931 95	24,506 88	28,839 73	279,272 62

ANNUAL Report from April 1, 1910, to March 31, 1911.

DREDGE 'DELVER.' OWNER DOMINION DREDGING CO.

Localities where Dredging was performed.	Date. From.	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
St. Andrews, N.B.	July 6	Dec. 16	12, 15, 20 feet	141,449	40,641 51	28·72

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September	October.	November	December	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	.....	.....	79 20	98 75	.....	12 00	91 50	46 75	.....	328 20
Contingencies	.....	.....	.....	7,044 48	5,164 41	8,465 93	883 50	14,352 31	4,402 68	.....	40,313 51
Totals	.....	.....	.....	7,123 68	5,263 16	8,465 93	895 50	14,443 81	4,449 43	.....	40,641 51

ANNUAL Report from April 1, 1910 to March 31, 1911.

DREDGE 'DOMINION COAL COMPANY.' OWNER. CANN AND McLEAN.

Localities where Dredging was performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Big Lorraine, N.S.	June 23	Oct. 15	7–11 feet	14,828	10,350 93	69·80

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September	October.	November	December	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	.....	17 50	67 13	75 50	66 25	64 05	.....	.....	.....	290 43
Contingencies	.....	.....	337 25	1,784 00	3,036 00	2,611 25	2,292 00	.....	.....	.....	10,060 50
Totals	.....	.....	354 75	1,851 13	3,111 50	2,677 50	2,356 05	.....	.....	.....	10,350 93

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DREDGE 'ETANGE.' OWNER, W. T. BARTRAM.

Localities where Dredging was performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Grand Etang, N.S.	Sept. 10	Nov. 7	7-10 feet	7,195	2,633 06	36·59

Total expenditure, $..... Total cubic yards removed, ... Cost per cubic yard, ...

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September	October.	November	December	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	.....	.....	.....	.....	54 91	78 51	19 77	.....	.....	153 19
Contingencies	.....	.....	.....	.....	.....	880 12	1,229 25	370 50	.....	.....	2,479 87
Totals	.....	.....	.....	.....	.....	935 08	1,307 76	390 27	.....	.....	2,633 06

ANNUAL Report from April 1, 1910, to March 1, 1911.

DREDGE 'EXCAVATOR.' OWNER, P. ENGLAND.

Localities where Dredging was performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From.	To				
					$ cts.	Cts.
Tabusintac	May 7	July 26	12 feet	9,660	3,174 81	32·86
Lawler's Shore (N.W. Miramichi)	Aug. 13	Oct. 1	5 feet	8,529	3,059 44	35·87

Total expenditure, $..... Total cubic yards removed, 18,189. Cost per cubic yard,.....

DETAILS OF EXPENDIURE.

—	April.	May.	June.	July.	August.	September	October.	November	December	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	52 50	60 00	52 75	25 50	39 00	9 65	.....	.....	.....	239 40
Contingencies	.....	905 03	1,120 19	984 34	1,141 14	1,779 75	64 40	.....	.....	.....	5,994 85
Totals	.....	957 53	1,180 19	1,037 09	1,166 64	1,818 75	74 05	.....	.....	.....	6,234 25

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'GREY LOGGIE'. OWNER, A. R. LOGGIE.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Dalhousie, N.B.	June 23	November 3	24	84,054	25,307 10	30 10

DETAILS OF EXPENDITURE.

——	April.	May.	June.	July.	August.	September	October.	November	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages			19 75	76 75	84 20	77 00	65 30	15 50			338 70
Contingencies			1,602 40	5,077 77	6,125 65	6,715 63	4,783 09	663 86			24,968 40
Totals			1,622 15	5,154 52	6,209 85	6,792 63	4,848 59	679 36			25,307 10

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'HAYWARDS'. OWNER, EASTERN DREDGING CO.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	$ cts.
Stone Haven, N.B	June 2	June 30	10-12	6,341	2,296 35	36 21
Miramichi Bay (Grandoon Flats)	July 22	October 26	22	88,482	9,993 02	11 29
Bai du Vin	October 29	November 7	9	2,112	769 70	36 44

Total cubic yards removed, 96,935.

DETAILS OF EXPENDITURE.

——	April.	May.	June.	July.	August.	September	October.	November	December	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages			62 00	28 50	81 75	76 00	73 75	30 50			352 50
Contingencies			2,234 35	994 51	3,031 93	3,847 25	1,859 33	739 20			12,706 57
Totals			2,296 35	1,023 01	3,113 68	3,923 25	1,933 08	769 70			13,059 07

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'INVADOR.' OWNER, A. & B. LOGGIE.

Localities where Dredging was Performed.	Date		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From.	To.				
					$ cts.	$ cts.
Miramichi Bay (Grandoon Flats)	August 1	Oct. 26	22 feet.	72,422	8,177 51	11·29

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages				2 50	73 75	74 00	60 75				211 00
Contingencies					2,285 43	3,383 44	2,297 64				7,966 51
Totals				2 50	2,359 18	3,457 44	2,358 39				8,177 51

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'IROQUOIS.' OWNER, MARITIME DREDGING AND CONSTRUCTION CO.

Localities where Dredging was Performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
St. John Harbour, N.B.	May 21, 1910	Feb. 4, 1911	32 feet.	161,959	65,459 88	40 41

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages		84 42	102 06	90 00	161 00	264 33	304 67	179 89	185 33	114 00	1,485 70
Contingencies		1,647 55	7,427 07	2,595 07	8,942 13	11,016 32	8,346 35	9,749 63	6,815 17	7,434 73	63,974 18
Totals		1,731 97	7,529 13	2,685 23	9,103 13	11,280 65	8,651 02	9,929 52	7,000 50	7,548 73	65,459 88

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'KING EDWARD' OWNER, W. J. POUPORE CO.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From.	To.				
					$ cts.	$ cts.
West Dublin, N.S.	June 9	June 27.	13 feet.	30,083	13,582 35	45·18
LaHave River	June 30.	October 15	18 "	69,577	50,437 82	72·49
Lunenburg	Dec. 1, 1910	March 30, 1911.	17 "	98,715	39,257 98	39·76

Total cubic yards removed 198,375.

DETAILS OF EXPENDITURE.

——	April.	May.	June.	July.	August.	September.	October.	November.	December.	January February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	.....	55 00	91 75	103 50	90 50	57 50	.....	105 00	160 56	663 81
Contingencies	.....	.....	14,017 74	13,825 60	16,321 00	13,960 19	5,497 39	.....	17,733 13	21,259 29	102,614 34
Totals	.....	.....	14,072 74	13,917 35	16,424 50	14,050 69	5,554 89	.....	17,838 13	21,419 85	103,278 15

ANNUAL REPORT from April 1, 1910 to March, 31 1911—*Continued.*

DREDGE WRECKING BARGE "MULE" MARITIME DREDGING AND CONSTRUCTION CO.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From.	To.				
					$ cts.	$ cts.
Yarmouth Harbour, Sollows Rock	July 25	Aug. 31	18 feet.	128	680 19	5 31·39

DETAILS OF EXPENDITURE.

——	April.	May.	June.	July.	August.	September.	October.	November.	December.	January February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages				15 00	72 79						87 79
Contingencies				131 38	461 02						592 40
Totals				146 38	533 31						680 19

ANNUAL Report from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'No. 1.' OWNER, BEAZLEY BROS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Arisaig	June 8	June 13	18 feet.	586	336 33	.57·34
Cribben's Point	" 22	August 22	9—12 "	16,248	9,099 72	.56
Harbour au Bouche	September 20	November 17	12 "	28,000	11,051 00	.39·46

Total cubic yards removed, 44,834.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ ctss	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages			38 87	67 62	58 08	25 00	80 25	38 25			308 07
Contingencies			1,709 68	5,085 30	2,464 00	2,198 82	4,959 24	3,761 94			20,178 98
Totals			1,748 55	5,152 92	2,522 08	2,223 82	5,039 49	3,800 19			20,487 05

ANNUAL Report from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'No. 2.' OWNER, BEAZLEY BROS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Digby, N.S.	June 14	September 13	17 feet.	48,520	21,605 20	·44·52
Raquette	September 15	September 16	—	85	34 00	·40
Mahone Bay	October 8	December 6	16 "	39,544	15,970 60	·40·38
Eastern Passage	Dec. 28, 1910	Feb. 14, 1911	5 "	7,091½	2,748 77	·38·76

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January. February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages			40 00	60 00	67 20	30 00	60 00	78 00	15 00	54 00	404 20
Contingencies			4,050 40	7,973 60	7,662 80	1,721 20	6,043 60	6,268 00	2,038 56	2,196 21	39,954 37
Totals			4,090 40	8,033 60	7,730 00	1,751 20	6,103 60	8,346 00	2,053 56	2,256 21	40,358 57

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE No. 4 OWNER, DOMINION DREDGING CO,

Localities where Dredging was Performed.	Date. From.	Date. To	Depth of water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Yarmouth, N.S.	May 19th.	Nov. 23rd	18 feet.	340,830	101,425 51	·29·75

DETAILS OF EXPENDITURE.

—	April.	May.	June	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	80 50	206 05	206 77	71 59	.....	179 50	136 25	.....	.....	880 66
Contingencies	.....	8,920 80	27,877 50	24,160 59	14,124 60	.....	12,451 95	13,009 50	.....	.....	100,544 85
Totals	.....	9,001 30	28,083 55	24,367 27	14,196 19	.....	12,631 45	13,145 75	.....	.....	101,425 51

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'PRINCE LOUIS'. OWNER, W. J. POUPORE CO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Miramichi	July. 16	Aug. 20	16	18,399	4,698 61	·25·53
Caraquet	Sept. 12	Oct. 28	18-22	11,078	3,538 36	·31·94

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages				41 00	57 75	72 50	74 75				246 00
Contingencies				1,857 89	2,741 97	1,107 15	2,283 96				7,990 97
Totals				1,898 89	2,799 72	1,179 65	2,358 71				8,236 97

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'PRINCE ITO'. OWNER, W. J. POUPORE CO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
Horseshoe and Lump (Miramichi Bay)	July 19	October 26	22	134,521	60,789 60	·45·18

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September	October.	November	December	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages				32 50	85 50	76 75	69 25				264 00
Contingencies				8,863 43	23,358 38	19,508 76	8,795 03				60,525 60
Totals				8,895 93	23,443 88	19,585 51	8,864 28				60,789 60

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'PRINCE GUY'. OWNER, W. J. POUPORE CO.

Localities where Dredging was Performed.	Date.		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
North Sydney, N.S.	May 16	May 21	26	337	134 80	·40·00
Smelt Brook	June 1	July 7	12	5,578	2,978 01	·53·54
Three Island Cove	July 16	October 29	7	11,752	9,052 78	77·03

Total cubic yards removed, 17,667.

DETAILS OF EXPENDITURE.

	April.	May.	June.	July.	August.	September	October.	November	December	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.	$ cts	$ cts.
Wages			173 50	56 00	78 50	75 00	74 41				457 41
Contingencies		134 80	2,125 69	1,092 50	773 07	1,391 80	6,199 32				11,717 18
Totals		134 80	2,299 19	1,148 50	851 57	1,466 80	6,273 73				12,174 59

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'PETER ENGLAND'. OWNER, P. ENGLAND.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Tabusintac, N.B.	May 23	July 9	2 2½	7,740	1,948 76	·25·17
Lawlor's Shore	August 22	September 30	5	5,959	2,150 19	·36·18

Total cubic yards removed, 13,699.

DETAILS OF EXPENDITURE.

	April.	May.	June.	July.	August.	September	October.	November	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	37 50	65 00	24 00	25 50	39 00	.....	.....	.....	.....	230 00
Contingencies	.....	680 00	771 54	370 72	522 55	1,563 10	.....	.....	.....	.....	3,868 91
Totals	.....	717 50	836 54	394 72	548 05	1,602 10	.....	.....	.....	.....	4,098 91

QUEBEC AND ONTARIO.

GOVERNMENT DREDGES.

Challenge, Deschenes, Industry, International, Mattawa, Nipissing, No. 2, No. 3, No. 5, Ontario, Ottawa, Progress, Prince Willie (leased), *Queen, Quebec, Sir Richard* and *St. Louis.*

Other dredges owned by the department, but not mentioned in these tables, are the *Richelieu, No. 1, St. Maurice, Lake St. John,* as well as those in the districts of Messrs. Earle, Elliott and Goodspeed of Manitoba, Saskatchewan and Alberta.

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'CHALLENGE.' OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
				$ cts.	Cts.
Rockland	May 12	May 17	650		
L'Orignal	" 18	June 7	4,550		
Rigaud	June 13	Aug. 13	9,400		
Pointe aux Tremble	Sept. 5	Sept. 17	2,350	9,412 04	24·10.
Sorel	" 19	Nov. 17	22,100		
			39,050		

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September	October.	November	December	January, February and March.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	294 33	1,008 00	606 34	484 19	463 87	481 00	580 65	817 70	8 50	170 58	4,915 16
Fuel	40 15	322 58	425 27	10 25	.....	322 41	333 44	180 44	164 25	.....	1,798 79
Provisions	75 80	171 07	7 50	187 03	186 36	186 95	204 81	233 59	3 25	.....	1,256 36
Stores and equipment	15 63	52 71	3 75	6 90	1 25	31 58	46 60	40 90	37 26	120 51	357 09
Repairs	69 17	270 82	5 50	53 14	.....	13 06	67 56	.....	30 17	516 56	1,025 98
Pilotage and towage	.....	.....	.....	.....	.....	.....	7 00	.....	.....	.....	7 00
Contingencies	.....	4 50	8 31	2 90	.....	.....	10 00	10 20	15 75	.....	51 66
Totals	495 08	1,829 68	1,056 67	744 41	651 48	1,035 00	1,250 06	1,282 83	259 18	807 65	9,412 04

ANNUAL Report from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'DESCHENES.' OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed,	Date. From	Date. To	Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Aylmer	13 May	14 November	6-9	23,258	9,906 16	42·59

DETAILS OF EXPENDITURE.

——	April.	May.	June.	July.	August.	September	October.	November	December	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	564 66	502 88	358 81	315 00	358 55	458 07	73 71	400 00	109 36	716 78	4,257 82
Fuel	.....	117 47	123 50	936 17	125 90	.....	417 50	.....	.....	.....	1,320 54
Provisions	45 25	91 33	187 23	96 77	135 54	165 00	63 85	155 33	55 13	150 00	1,245 43
Stores and equipment	.....	119 83	27 88	60 55	169 98	49 31	19 16	.....	43 04	189 42	719 17
Repairs	10 35	626 31	73 32	72 90	187 48	142 48	5 76	53 05	65 35	21 00	1,377 00
Pilotage and towage	.....	.....	.....	.....	408 00	.....	125	.....	.....	.....	408 00
Contingences	.....	.....	483 50	2 50	11 20	7 05	.....	.....	.....	69 00	578 20
							4 95				
Totals	620 26	1,457 82	1,254 24	1,483 89	1,396 65	821 91	844 93	608 38	272 88	1,146 20	9,906 16

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued*

DREDGE 'INDUSTRY,' OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Port Stanley	March 23	April 23	14½-16 feet	143,137	30,684 26	08·26
	July 19	September 3	14½-16 feet			
Port Burwell	April 25	July 16	17-20 feet	94,230		
Meaford	Sept. 19	November 30	18-24 feet	133,891		

Total cubic yards removed, 371,258.

DETAILS OE EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	1,136 00	1,150 32	1,159 33	1,142 41	1,186 93	1,154 98	1,229 18	1,267 51	909 38	2,484 54	12,820 58
Fuel	424 28	.....	895 22	529 24	810 11	363 52	.....	615 00	897 20	.....	4,534 57
Provisions	371 82	415 47	393 40	383 21	401 20	392 05	399 95	400 92	259 99	419 93	3,837 94
Stores and equipment	146 97	1,340 84	149 12	122 28	2 94	369 46	15 75	42 69	13 28	1,630 48	3,833 81
Repairs	141 37	413 68	.....	165 86	136 41	65 29	150 60	53 18	16 40	2,286 36	3,429 15
Pilotage and towage	.....	.....	.....	.....	.....	1,600 00	.....	.....	.....	.....	1,600 00
Contingencies	27 51	.....	13 20	26 02	22 00	22 26	92	58 28	191 62	266 40	628 21
Totals	2,247 95	3,320 31	2,610 27	2,369 02	2,559 59	3,967 56	1,796 40	2,437 58	2,287 87	7,087 61	30,684 26

ANNUAL Report from April 1. 1910, to March 31, 1911—*Continued.*

DREDGE 'INTERNATIONAL.' OWNER DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
St. Charles River Breakwater	May 2	May 28	46 feet	93,800	17,369 36	14·07
	June 22	October 8				
Quebec Bridge	May 30	June 22	30 feet	16,500		
Levis	October 10	November 5	35 feet	13,125		

Total cubic' yards removed, 123,425.

DETAILS OF EXPENDITURE

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	613 50	596 94	647 00	675 00	675 00	790 00	710 00	710 00	536 55	1,449 62	7,403 61
Fuel	.....	.....	.....	9 35	.....	.....	271 02	.....	3,211 93	.....	3,492 30
Provisions	198 98	213 73	216 16	230 00	230 00	228 58	230 00	237 36	151 46	418 08	2,354 35
Stores and equipment	222 27	.....	4 40	63 97	.....	111 39	99	3 00	.....	337 80	743 82
Repairs	64 43	75 20	78 67	91 55	3 29	221 44	164 49	406 64	3 20	1,509 83	2,618 74
Pilotage and towage	.....	.....	.....	.....	.....	98 50	.....	10 00	.....	.....	108 50
Contingencies	600 00	.....	.....	.....	.....	.....	2 47	4 45	19 27	21 85	648 04
Totals	1,699 18	885 87	946 23	1,069 87	908 29	1,449 91	1,378 97	1,371 45	3,922 41	3,737 18	17,369 36

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'MATTAWA,' OWNER, DEPARTMENT OF PUBBIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Lake Nipissing, Sturgeon River	May 23	May 28	10 feet	3,765	12,879 12	·17·72.
South River	June 3	August 20	10 feet	39,285		
Restoule Bay, French River	August 22	September 10	10-11 feet	8,620		
North Bay	September 12	September 30	14 feet	7,600		
Sturgeon River	October 3	November 12	13 feet	13,375		

Total expenditure, $12,879.12. Total cubic yards removed, 72,645.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	200 00	897 52	450 00	450 00	457 50	444 17	482 90	365 67	120 00	757 83	4,625 59
Fuel	.....	58 75	222 47	275 66	836 53	567 68	64 24	15 85	.....	18 00	2,059 18
Provisions	.....	266 82	298 20	168 00	171 40	154 50	156 38	108 50	15 00	178 82	1,517 62
Stores and equipment	.....	85 46	123 33	15 15	22 00	10 50	65 93	5 60	.....	94 79	422 76
Repairs	95 71	691 25	30 95	584 11	43 65	38 58	14 97	135 61	.....	1,347 01	2,981 84
Pilotage and towage	.....	.....	20 00	.....	.....	4 50	25 00	.....	.....	.....	49 50
Contingencies	13 77	107 62	333 70	156 57	.....	34 40	22 71	261 30	66 63	225 93	1,222 63
Totals	309 48	2,107 42	1,478 65	1,649 49	1,531 08	1,254 33	832 13	892 53	201 63	2,622 38	12,879 12

ANNUAL Report from April 1910, to March 31, 1911—*Continued.*

DREDGE 'NIPISSING.' OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure	Cost per Cubic Yard.
					$ cts.	Cts.
Hull	May 16	May 28	10 feet	3,330	12,713 46	31·80
Papineauville	May 30	May 31	10 feet	810		
Montebello	June 1	June 18	10 feet	6,570		
Vaudreuil	June 20	July 16	10 feet	8,460		
Hudson	August 18-26	November 7-19	10 feet	8,615		
St. Ann's	August 29	September 24	14 feet	5,670		
St. Marc	October 19	October 25	10 feet	3,120		
St. Denis	October 3	October 18	10 feet	3,160		
St. Ours	October 28	October 29	10 feet	240		

Total cubic yards removed, 39,975.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	834 06	410 64	441 00	460 00	451 83	836 51	475 00	746 55	.....	1,586 50	6,242 09
Fuel	380 96	97 81	221 00	.....	257 43	38 00	275 78	306 80	.....	200 78	1,778 56
Provisions	60 00	142 36	162 75	171 77	195 87	177 44	183 54	181 19	.....	.....	1,274 92
Stores and equipment	40 00	7 25	.....	.....	11 65	4 25	81 83	28 00	.....	120 74	293 72
Repairs	381 27	608 42	.....	10 30	31 00	472 95	.....	105 25	250 70	1,155 73	3,015 62
Pilotage and towage	.....	.....	.....	.....	.....	15 00	.....	15 00	.....	.....	30 00
Contingencies	.....	.....	1 43	6 85	.....	1 00	2 05	42 22	25 00	.....	78 55
Totals	1,696 29	1,266 48	826 18	648 92	947 78	1,545 15	1,018 20	1,425 01	275 70	3,063 75	12,713 46

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'No. 2.' OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard
					$ cts.	Cts.
La Salette	May 9	August 20	10 feet.	13,606	9,931 76	.40·71
Poupore	August 22	November 12	10 "	10,786		

* Total cubic yards removed, 24,392.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	440 84	670 00	435 00	434 00	435 00	455 00	495 00	495 00	531 00	1,349 94	5,740 78
Fuel	....	....	....	....	55 00	....	725 00	....	326 40	....	1,116 40
Provisions	240 70	158 00	168 00	168 00	172 20	168 00	168 00	168 00	179 00	227 78	1,817 68
Stores and equipment	11 00	32 10	....	....	....	58 56	....	....	....	159 57	261 23
Repairs	36 52	37 50	....	59 88	39 82	164 81	4 20	....	99 60	400 61	842 94
Contingencies	14 03	6 60	....	....	10 95	16 96	10 50	....	87 25	6 44	152 73
Totals	743 09	904 20	603 00	661 88	712 97	863 33	1,402 70	663 00	1,233 25	2,144 34	9,931 76

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued*

DREDGE 'No. 3.' OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
Charlemagne	April 18	May 14	4—6½ feet.	15,952	9,013 75	.19·74
	July 6	August 16	4—6½ "			
Lavaltrie	May 18	May 31	9 "	3,947		
St. Sulpice	June 1	June 4	9 "	1,680		
Bout de l'Isle	" 6	" 25	5 "	5,640		
Pointe Deschamp, Repentigny	" 27	July 5	5 "	1,997		
Vaudreuil	August 16	August 20	6—8—10 "	16,438		
	" 22	November 19				

* Total cubic yards removed, 45,654.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	415 00	430 00	418 17	391 13	455 49	472 67	470 00	630 00	118 53	538 30	4,339 29
Fuel	42 00	.....	367 41	345 36	116 50	.....	.....	.....	.....	.....	871 27
Provisions	149 92	166 02	181 06	164 51	161 05	160 14	154 02	154 02	15 50	.....	1,306 24
Stores and equipment	19 91	78 70	.....	9 30	13 24	.....	.....	.....	4 20	104 60	234 95
Repairs	567 35	83 46	57 43	24 35	109 23	180 82	56 42	13 20	303 97	498 77	1,895 00
Pilotage and towage	.....	.....	.....	27 70	.....	.....	.....	.....	175 00	.....	202 70
Contingencies	.....	5 11	.....	11 97	22 28	84 39	.....	.....	35 72	4 83	164 30
Totals	1,194 18	763 29	1,024 07	974 32	882 79	898 02	680 44	797 22	652 92	1,146 50	9,013 75

ANNUAL REPORT from April 1, 1910 to March 31, 1911.—*Continued.*

DREDGE "5." OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
Lynch Island	June 30	August 27	14 feet.	7,261	11,649 05	$1,06·37
Stanley Island	September 12	October 8	14 "	2,940		
Prescott	October 24	October 29		750		

Total cubic yards removed 10,951.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages		197 90	1,030 77	489 03	442 26	500 00	428 50	775 00	358 50	3,163 77	7,365 73
Fuel			429 02		13 50		182 85			39 30	664 67
Provisions		30 00	180 80	176 40	161 02	170 04	184 96	194 14			1,097 36
Stores and Equipment	63 75		15 15	2 70	12 60	2 00	2 00	59 87		177 15	335 22
Repairs				20 85	446 01	159 26	420 55		93 92	672 98	1,813 57
Pilotage and Towage				50 00		30 00	95 00		100 00		275 00
Contingencies				18 36	17 65	17 87	10 12		33 50		97 50
Totals	63 75	227 90	1,655 74	757 34	1,093 04	879 17	1,323 98	1,029 01	565 92	4,053 20	11,649 05

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE "ONTARIO." OWNER DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
Wallaceburg	May 2	October 22	19 feet.	103,700	10,635 59	·09·96
	November 5	November 1	19 "	.....		
Dresden	October 24	October 29	12 "	1,400		
Sarnia	November 7	November 19	20 "	1,600		

Total cubic yards removed, 106,700.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	371 00	440 00	435 00	413 71	435 00	435 00	475 00	475 00	30 00	269 40	3,779 11
Fuel	184 84	120 47	248 20	125 20	154 45	70 92	239 20	47 57	131 80	.....	1,322 65
Provisions	92 40	153 00	153 00	153 00	153 00	153 00	153 00	153 00	15 00	69 20	1,247 60
Stores and Equipment	80 14	28 35	22 51	52 79	4 47	21 58	70 74	.....	.....	5 90	286 48
Repairs	1,660 87	.....	21 41	129 31	16 70	.....	349 26	.....	.....	1,515 04	3,692 59
Contingencies	8 25	.....	134 18	6 38	37 23	.....	.....	48 75	.....	72 37	307 16
Totals	2,397 50	741 82	1,014 30	880 39	800 85	680 50	1,287 20	724 32	176 80	1,931 91	10,635 59

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DREDGE 'OTTAWA'. OWNER DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Sorel	April 18	June 11	15-24 feet.	38,100	21,453 56	43·36
Baie St. Paul	July 11	November 5	12-14 "	11,370		

Total cubic yards removed 49,470.

DETAILS OF EXPENDITURE.

——	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	1,171 00	895 00	865 00	775 01	856 77	954 65	1,154 35	1,065 00	520 34	1,364 45	9,621 57
Fuel						225 00			3,601 16		3,826 16
Provisions		335 00	323 00	135 48	278 23	330 00	594 86	360 00	56 85	405 57	2,818 99
Stores and equipment			7 58			92 62	47 72		17 57	541 55	707 04
Repairs		180 43	2,224 97			130 07	160 89		175 77	826 43	3,698 56
Contingencies				9 39	20 45	15 50	71 31	126 63	378 45	159 51	781 24
Totals	1,171 00	1,410 43	3,420 55	919 88	1,155 45	1,747 84	2,029 13	1,551 63	4,750 14	3,297 51	21,453 56

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'PROGRESS'. OWNER DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yards.
					$ cts.	$ cts.
St. Michel	April 25	May 21		14,300	22,164 67	16·81
Rimouski	June 6	October 8	15 feet.	104,700		
Quebec	October 24	November 26	16 "	12,850		

Total cubic yards removed 131,850.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	1,070 00	1,059 85	1,104 83	1,085 48	1,113 00	1,177 55	1,077 39	1,024 72	710 14	1,153 60	10,576 56
Fuel			186 21				284 54		3,301 92		3,772 67
Provisions	398 66	389 94	403 00	405 97	405 00	399 82	346 46	376 50	139 33	335 09	3,599 77
Stores and equipment	81 71	252 72	27 12		24 55		104 70	2 02	6 25	90 54	589 61
Repairs	909 16		79 48	62 21	284 24	40 20	150 73		423 87	321 97	2,271 86
Pilotage and Towage			625 00						48 00	61 50	734 50
Contingencies	5 60		8 44	102 35	192 08	103 95	53 60	8 85	64 58	80 25	619 70
Totals	2,465 13	1,702 51	2,434 08	1,656 01	2,018 87	1,721 52	2,017 42	1,412 09	4,694 09	2,042 95	22,164 67

ANNUAL REPORT, from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE "PRINCE WILLIE". OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To			$ cts.	cts.
Bout de L'isle, River des Prairies	October 4.	November 24.	6 feet	30,175	6,462 30	21·41
Total Cubic Yards Removed.				30,175		

DETAILS OF EXPENDITURE.

——	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February, and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages							525 00	451 66		54 25	1,030 91
Fuel							308 75	191 26			500 01
Provisions							183 00	159 00			342 00
Stores and Equipment							37 51	59 88			97 39
Repairs								14 20			14 20
Pilotage and Towage								82 10			82 10
Contingencies							2,340 00	2,055 69			4,395 69
Totals							3,394 26	3,013 79		54 25	6,462 30

ANNUAL REPORT, from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE "QUEEN". OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities Where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Temiskaming	May 16	November 12	5 - 7½	8,644	10,997 00	1,27·22

DETAIL OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	440 16	558 06	480 00	480 00	500 00	478 00	523 71	521 17	366 94	681 49	5,029 53
Fuel	18 75	284 85	.....	332 15	.....	133 63	550 01	467 27	.....	.....	1,786 66
Provisions	146 00	212 70	189 63	188 27	188 27	188 10	185 47	182 50	129 96	173 81	1,784 71
Stores and Equipment	33 95	16 00	.....	19 28	76 50	26 09	63 31	4 50	19 50	50 66	309 79
Repairs	5 00	42 97	.....	184 87	24 60	312 76	303 07	201 36	.....	628 65	1,703 28
Pilotage and Towage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Contingencies	50 34	90 25	11 72	12 10	.....	18 39	122 99	11 20	.....	66 04	383 03
Totals	694 20	1,204 83	681 35	1,216 67	789 37	1,156 97	1,748 56	1,388 00	516 40	1,600 65	10,997 00

ANNUAL REPORT, from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE "QUEBEC." OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Toronto	April 27	June 30	20 — 25 feet.	82,600		
Niagara	July 4	September 6	25 feet.	51,900		
Hamilton	September 12	November 12	20 "	139,700	30,340 83	·10·87
Port Burwell	November 14	December 7	25 "	4,700		

Total Cubic Yards removed, 278,900.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	1,162 26	1,128 33	1,139 67	1,220 00	1,364 87	1,180 00	1,241 79	1,249 15	1,078 88	2,423 39	13,128 34
Fuel	116 95	.....	615 37	968 74	836 29	266 63	556 95	195 21	33 75	203 74	3,793 63
Provisions	399 68	395 32	397 50	390 00	451 48	435 50	377 90	400 03	396 06	619 65	4,263 12
Stores and Equipment	294 93	.....	398 85	70 34	578 96	66 01	245 83	76 93	417 84	1,504 63	3,654 32
Repairs	200 30	.....	313 27	1,053 98	738 00	.....	10 14	.....	22 60	711 69	3,049 98
Pilotage and Towage	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,435 75	1,435 75
Contingencies	91 80	.....	3 52	9 49	24 91	125 44	10 47	56 05	267 39	426 62	1,015 69
Totals	2,205 92	1,523 65	2,868 18	3,712 55	3,994 51	2,073 58	2,443 08	1,977 37	2,216 52	7,325 47	30,340 83

ANNUAL REPORT, from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE "SIR RICHARD." OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Kingston	April 25	April 28	16 feet.	1,600		
Brockville	May 6	May 14	13 "	3,900		
Oakville	May 16	June 18	12 "	13,600	9,288 55	·12·39
Newcastle	June 20	August 6	14 "	22,000		
Port Credit	August 8	November 19	14 "	27,220		
Hamilton	November 23	December 7	16 "	6,600		

Total Cubic Yards removed, 74,920.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	463 68	505 00	430 00	380 00	430 00	430 00	475 00	485 00	257 46	672 08	4,528 22
Fuel	546 45	.....	338 59	229 25	125 78	201 25	.....	189 13	204 90	20 26	1,855 61
Provisions	90 00	160 48	154 70	153 00	154 70	153 00	153 00	153 00	70 74	101 35	1,343 97
Stores and Equipment	76 03	13 25	70 90	.....	6 85	8 00	.....	2 00	15 95	169 87	362 85
Repairs	262 26	33 50	.....	11 35	9 10	61 60	46 34	.....	16 59	529 82	970 56
Pilotage and Towage	15 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	15 00
Contingencies	23 33	75	.....	3 15	6 40	.....	.....	.....	110 15	68 56	212 34
Totals	1,476 75	712 98	994 19	776 75	732 83	853 85	674 34	829 13	675 79	1,561 94	9,288 55

ANNUAL REPORT, from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE "ST. LOUIS." OWNER, DEPARTMENT OF PUBLIC WORKS.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Lavaltrie	May 12th	May 13th	9 feet.	448		
Yamaska, Baie de la Valière	May 17th	June 30th	3 "	11,262		
Belœil	July 1st	August 17th	9 "	1,913		
St. Hilaire	August 18th	August 30th	6 "	2,432		
St. Denis	August 31st	October 8th	6—9 "	576	8,159 67	0.31
Notre Dame de Pierreville	October 10th	October 15th	9 "	608		
Maskinongé	October 17th	November 17th	7—9 "	3,898		

Total Cubic Yards removed, 26,321.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	288 15	415 00	415 00	435 00	415 00	415 00	470 00	465 36	13 50	405 83	3,737 84
Fuel	35 00	174 48			157 50		310 50	7 25	282 83	7 25	974 81
Provisions	138 02	157 76	124 50	195 51	153 00	153 68	154 36	153 94		30 00	1,260 77
Stores and Equipment	95 53	70 04			15 84					50 10	231 51
Repairs	609 66	748 59	46 13	1 90	24 27	93 28	184 51	4 20	15 06		1,727 60
Pilotage and Towage							45 00	22 00			67 00
Contingencies	19 46		4 22		4 96	1 50	19 90	23 05		87 05	160 14
Totals	1,185 82	1,565 87	589 85	632 41	770 57	663 46	1,184 27	675 80	311 39	580 23	8,159 67

CONTRACTOR'S DREDGES.

Arnoldi, Algonquin, Capital, Chief, Central City, Camile D, Dragon Rouge, Duke of York, Dominion, Excelsior, E. Hall, No. 1, Frank, Francis Lemoine, Fundy, Hackett, Hamil, Horace D., Jack Kanuck, Kingsford, Kenna-quhair, Little Giant, Monarch, Mogul, Meade, Moose, No. 1 (L. & L.), *No. 1* (Great Lakes Dredging Co.), *No. 1* (A.F.B.) *No. 2* (D. F. Moore). *No. 5* (Great Lakes Dredging Co.) *No. 5* (R.McD.) *No. 6* (Great Lakes Dredging Co.) *No. 6* (Cie Industriel de Sorel), *No. 9* (Canadian Dredging and Con Co., *No. 9* (Penetang Dredging Co.), *No. 14. No. 15. Nehoc, Ottawa* (Cohen) *Ottawa* (Connelly). *Pellier, Prince Willie, Pontiac, St. Lawrence, St. Pierre, Sydenham, Stephen D., Shuniah, Tomasco, Trenton and Togo.*

ANNUAL REPORT, from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE "ARNOLDI." OWNER, W. H. HORTON.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Goderich	April 25th	November 24th.	19—22 feet.	71,641	36,728 25	051·26

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	18 50	80 00	80 00	80 00	83 50	80 00	80 50	73 00	.....	.....	575 50
Contingencies	572 50	4,282 50	3,460 00	12,740 50	5,527 00	3,607 50	4,217 50	1,745 25	.....	.....	36,152 75
Totals	591 00	4,362 50	3,540 00	12,820 50	5,610 50	3,687 50	4,298 00	1,818 25	.....	.....	36,728 25

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE "ALGONQUIN." OWNER, CONTINENTAL DREDGING COMPANY.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Saguenay	June 15, 1910	November 12, '11	18 feet	152,875	34,338 10	22 52

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	.....	145 00	158 00	175 50	155 00	158 00	117 50	.....	.....	909 00
Contingencies	.....	.....	4,083 56	8,272 61	9,281 81	6,520 13	1,363 88	3,907 11	.....	.....	33,429 10
Totals	.....	.....	4,228 56	8,430 61	9,457 31	6,675 13	1,521 88	4,024 61	.....	.....	34,338 10

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE "CAPITAL." OWNER, DUFRESNE & MARSHALL.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Batiscan	April, 30, '10	Sept. 17, '11	5 feet	83,533	17,061 20	20 42

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	9 00	78 50	78 00	51 00	81 00	49 60	.....	.....	.....	.....	347 10
Contingencies	190 40	4,846 85	4,513 45	2,043 00	4,082 00	1,038 40	.....	.....	.....	.....	16,714 10
Totals	199 40	4,925 35	4,591 45	2,094 00	4,163 00	1,088 00	.....	.....	.....	.....	17,061 20

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE "CHIEF." OWNER, W. E. PHIN.

Localities where Dredging was Performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
Port Hope	May 4	June 2	15 feet.	39,101	7,113 23	·18·19
Whitby	June 9	August 16	14 "	77,256	14,091 86	·18·24
Bowmanville	August 22	Sept. 13	14·5	26,314	4,799 87	·18·24

Total cubic yards removed, 142,671.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages		75 05	59 12	81 16	73 10	35 75					324 18
Contingencies		6,484 14	4,694 04	6,577 38	5,091 66	2,833 56					25,680 78
Totals		6,559 19	4,753 16	6,658 54	5,164 76	2,869 31					26,004 96

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE "CENTRAL CITY." OWNER, COHEN & SONS.

Localities where Dredging was Performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
St. Pierre des Becquets	May 20.	November 17.	10 feet.	61,785	13,770 69	·22·28

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	40 25	78 00	78 00	81 00	78 00	82 80	49 04	.....	.....	487 09
Contingencies	.....	337 70	2,015 20	2,005 30	2,887 50	2,911 70	2,186 80	939 40	.....	.....	13,283 60
Totals	.....	377 95	2,093 20	2,083 30	2,968 50	2,989 70	2,269 60	988 44	.....	.....	13,770 69

ANNUAL Report from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE "CAMILLE D." OWNER, H. DUSSAULT.

Locality where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
Quebec	August 15	August 19	15 feet	300	27 00	·09

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Contingencies					27 00						27 00
Totals					27 00						27 00

ANNUAL Report from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE "DRAGON ROUGE". OWNER, GENERAL DREDGING AND CONSTRUCTION CO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Welland River and Chippewa Creek.....	August 25	November 5....	12 feet.....	40,006	6,410 01	15·99

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages.....	... .	....	....	.. ....	21 50	83 10	80 30	24 17	.....	....	209 07
Contingencies.....	.....	... .	..... .	.....	307 99	3,036 14	2,684 29	172 52	.....	.....	6,200 94
Totals.....	.....	.....	.....	.....	329 49	3,119 24	2,764 59	196 69	.....	.....	6,410 01

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE "DUKE OF YORK." OWNER, W. J. POUPORE, CO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Rivière du Loup en bas	May 4	July 16	7—7½ feet.	44,658	9,222 95	20·65
St. Francois River	July 18	August 24	7 "	25,392	3,831 56	15·08

Total cubic yards removed, 70,050.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	66 00	130 00	79 90	48 75	.....	.....	.....	.....	.....	324 65
Contingencies	.....	3,774 60	3,725 95	3,270 27	1,959 64	.....	.....	.....	.....	.....	12,729 86
Totals	.....	3,840 00	3,855 95	3,350 17	2,008 39	.....	.....	.....	.....	.....	13,054 51

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'DOMINION.' OWNER, GREAT LAKES.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
Fort William, Mission Basin	May 2	November 19	25 feet.	954,169	148,685 58	15·58

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March,	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	104 00	208 00	104 00	124 00	128 00	104 00	99 66	.....	.....	871 66
Contingencies	.....	24,281 55	26,863 23	20,541 75	19,288 71	22,402 37	21,896 94	12,539 37	.....	.....	147,813 92
Totals	.....	24,385 55	27,071 23	20,645 75	19,412 71	22,530 37	22,000 94	12,639 53	.....	.....	148,685 58

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'EXCELSIOR'. OWNER, CANADIAN DREDGING.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
Victoria Harbour	April 21	August 31	22·25	157,634	103,226 85	·65·49
Tiffin	October 20	December 3	25	36,249	10,685·45	·29·47
.....	September 1	October 19	.....	.....	.....	.....

Total cubic yards removed, 193,883.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.		$ cts.
Wages	46 28	81 29	80 68	81 28	84 22	80 90	109 82	80 86	27 26	.....	672 59
Contingencies	2,192 27	9,133 25	31,857 63	28,014 25	26,884 75	5,108 73	6,375 58	3,474 75	208 50	.....	113,249 71
Totals	2,238 55	9,214 54	31,938 31	28,095 53	26,968 97	5,189 63	6,485 40	3,555 61	235 76	.....	113,922 30

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'E. HALL No. 1'. OWNER, GENERAL CONSTRUCTION CO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Port Burwell	April 27	July 5	20-23	29,300	8,683 00	29 63

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	15 00	78 00	78 00	15 00							186 00
Contingencies	176 32	2,734 99	4,714 82	870 87							8,497 00
Totals	191 32	2,812 99	4,792 82	885 87							8,683 00

ANNUAL REPORT, from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'FRANK.' OWNER, GREAT LAKES

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Mission Basin, Fort William	June 2	November 19	25-26	326,039	52,636 81	16 14

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages			100 00	104 00	148 00	104 00	104 00	144 00			704 00
Contingencies			8,697 01	10,349 79	8,876 89	9,039 07	6,728 43	8,241 62			51,932 81
Totals			8,797 01	10,453 79	9,024 89	9,143 07	6,832 43	8,385 62			52,636 81

ANNUAL REPORT, from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'FRANCIS LEMOINE.' OWNER, F. LEMOINE.

Localities Where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	$ cts.
Bonaventure River	August 19	October 31	10 feet	38,091	7,672 82	20 14

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	Septemberr.	October.	November.	December.	January, February, and March.	Totals.
	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages				45 00	67 50	65 00	65 00				242 50
Contingencies					674 00	2,193 73	4,562 59				7,430 32
Totals				45 00	741 50	2,258 73	4,627 59				7,672 82

ANNUAL REPORT from April 1, 1910, to Msrch 31, 1911—*Continued.*

DREDGE 'FUNDY.' OWNER, DOMINION DREDGING COMPANY.

Localities where Dredging was performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
Quebec Harbour ..... St. Charles river	May 27	Nov. 5.....	35 feet.	325,898	80,419 46	·24·67

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, Februay and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages.....	.....	30 00	78 00	78 00	136 00	125 50	65 00	33 75	.....	.....	546 25
Contingencies....	.....	.....	14,477 54	10,879 45	17,738 49	13,426 86	20,221 57	3,129 30	.....	.....	79,873 21
Totals..	.....	30 00	14,555 54	10,957 45	17,874 49	13,552 36	20,286 57	3,163 05	.....	.....	80,419 46

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'HACKET.' OWNER PENETANG DREDGING CO.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From.	To.				
					$ cts.	$ cts.
Fesserton	May 16	Oct. 29	10 feet.	65,922	10,047 82	·15·24

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	42 56	80 28	78 00	81 00	83 24	91 16	35 04	.....	.....	491 28
Contingencies	.....	940 80	3,633 00	1,420 02	2,333 13	1,160 75	68 84	.....	.....	.....	9,556 54
Totals	.....	983 36	3,713 28	1,498 02	2,414 13	1,243 99	160 00	35 04	.....	.....	10,047 82

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'HAMIL.' OWNER, W. E. PHIN.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Thames River	June 16	November 30	14—15 feet.	99,279	18,045 92	.18·17

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	.....	40 00	65 00	76 50	67 50	72 50	74 25	.....	.....	386 75
Contingencies	.....	.....	1,805 50	3,250 18	2,558 42	2,810 75	3,959 89	3,274 43	.....	.....	17,659 17
Totals	.....	.....	1,845 50	3,315 18	2,625 92	2,878 25	4,032 39	3,348 68	.....	.....	18,045 92

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'HORACE D.' OWNER, H. DUSSAULT.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
St. Charles River, Que.	August 25	September 17	13 feet.	2,096	188 71	.09·02

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Contingencies	.....	.....	.....	.....	89 01	99 70	.....	.....	.....	.....	188 71
Totals	.....	.....	.....	.....	89 01	99 70	.....	.....	.....	.....	188 71

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'JACK CANUCK', OWNER, DREDGING AND DRAINAGE COMPANY OF ONTARIO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Kincardine	May 14	August 2	14 feet	32,236	7,317 92	22 63
Port Elgin	August 8	October 4	13 feet	23,541	5,307 98	22 54
Saugeen	October 8	November 30	12 feet	16,033	4,096 27	25 54

Total Expenditure. Total Cubic Yards Removed, 71,910. Cost per Cubic Yard.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February, and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	42 00	78 00	78 00	67 50	65 00	17 35	65 34	7 68	.....	420 87
Contingencies	.....	1,333 86	2,655 84	2,954 49	2,450 03	2,668 38	1,953 20	2,285 50	.....	.....	16,301 30
Totals	.....	1,375 86	2,733 84	3,032 49	2,517 53	2,733 38	1,970 55	2,350 84	7 68	.....	16,722 17

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'KINGSFORD', OWNER, C. S. BOONE DREDGING AND CONSTRUCTION CO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Wingfield Bason	June 27	July 23	18 feet	4,664	14,079 25	3·01 87
Two Mile Narrows	November 21	December 3	10 "	926	2,639 20	2·85 01

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts,	$ cts.
Wages			13 00	74 25				80 40	21 56		189 21
Contingencies			2,544 00	11,448 00				1,630 30	906 94		16,529 24
Totals			2,557 00	11,522 25				1,710 70	928 50		16,718 45

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'KENNAQUHAIR.' OWNER, W. E. PHIN.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From.	To.				
					$ cts.	cts.
Port Arthur Harbour	April 26	November 26	22-25 feet.	527,433	67,291 73	·12·75

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	52 00	104 00	104 00	104 00	108 00	104 00	104 00	104 00	.....	.....	784 00
Contingencies	763 62	7,588 57	10,907 39	11,148 47	12,274 34	8,862 43	8,480 57	6,482 34	.....	.....	66,507 73
Totals	815 62	7,692 57	11,011 39	11,252 47	12,382 34	8,966 43	8,584 57	6,586 34	.....	.....	67,291 73

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'LITTLE GIANT.' OWNER, COHEN & SON.

Localities where Dredging was Performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
Berthierville	May 19	November 19	11 feet.	125,411	20,729 05	·16·52

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	48 00	78 00	78 00	81 00	104 95	78 00	51 00	.....	.....	518 95
Contingencies	.....	994 55	3,494 18	3,262 56	3,347 59	3,273 60	3,668 00	2,169 62	.....	.....	20,210 10
Totals	.....	1,042 55	3,572 18	3,340 56	3,428 59	3,378 55	3,746 00	2,220 62	.....	.....	20,729 05

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'MONARCH.' OWNER, CANADIAN DREDGING AND CONSTRUCTION CO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Victoria	April 20	December 3	18—25 feet.	176,160	101,472 79	·57·60
Tiffin	August 8	August 31	25 "	23.420	6,910 56	·29·50

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	34 18	80 88	80 84	80 66	83 84	80 84	59 84	80 28	15 60	.....	596 96
Contingencies	3,293 37	11,984 43	18,075 00	27,625 00	7,894 72	28,675 87	5,242 25	4,558 25	437 50	.....	107,786 39
Totals	3,327 55	12,065 31	18,155 84	27,705 66	7,978 56	28,756 71	5,302 09	4,638 53	553 10	.....	108,383 35

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'MOGUL.' OWNER, COHEN & SONS.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	$ cts.
East Templeton	June 13	November 26	9–5 feet.	6,188	23,737 50	3·83·60

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	.....	27 00	78 00	101 13	122 65	100 85	93 61	.....	.....	328 78
Contingencies	.....	.....	337 50	7 68	2,312 33	5,671 50	7,308 00	7,577 25	.....	.....	23,206 58
Totals	.....	.....	364 50	85 68	2,413 46	5,794 15	7,408 85	7,670 86	.....	.....	23,737 50

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'MEADE.' OWNER, C. S. BOONE DREDGING AND CONSTRUCTION CO.

Localities where Dredging was Performed.	Date		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From.	To.				
					$ cts.	Cts.
Spanish River	July 18.	Nov. 1.	12	95,937	12,335 89	12·85

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
			$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages				94 05	83 00	80 00	80 70	6 00			343 75
Contingencies				1,504 88	4,140 75	4,014 25	2,150 38	181 88			11,992 14
Totals				1,598 93	5,223 75	4,094 25	2,231 08	187 88			12,335 89

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'MOOSE.' OWNER, RAINY RIVER DREDGING CO.

Localities where Dredging was Performed.	Date		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
Rainy River	May 23	Oct. 31	10	104,309	38,964 23	37·35

DETAILS OF EXPENDITURE.

—	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	34 75	116 50	124 90	93 75	.....	.....	.....	.....	.....	369 90
Contingencies	2,090 50	15,076 76	11,583 59	9,843 48	.....	.....	.....	.....	.....	38,594 33
Totals	2,125 25	15,193 26	11,708 49	9,937 23	.....	.....	.....	.....	.....	38,964 23

ANNUAL REPORT, from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'No. 1.' OWNER, LOURIN & LEITCH.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
Verdun	July 19	October 15	8 feet	21,480	7,734 50	36

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages				27 00	81 00	78 00	30 50				216 50
Contingencies				661 50	2,796 50	3,115 00	945 00				7,518 00
Totals				688 50	2,877 50	3,193 00	975 50				7,734 50

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'No. 1.' OWNER, GREAT LAKES DREDGING CO.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	$ cts.
Mission and Kaministiqui River	July 15	November 8	17-25 feet	64,768	29,384 55	45·36

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July,	August.	September.	October.	November.	December.	January, February, and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages				56 00	204 00	56 00	88 00	88 00			492 00
Contingencies				9,613 88	4,989 36	1,612 96	10,154 03	2,522 32			28,892 55
Totals				9,669 88	5,193 36	1,668 96	10,242 03	2,610 32			29,384 55

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'No. 1.' OWNER A. F. BOWMAN.

Localities where Dredging was Performed.	Date		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From.	To.				
					$ cts.	$ cts.
Sault Ste. Marie	May 12	June 13	21 feet.	3,970	12,598 74	3·17·24

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ ct	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ ctc.	$ cts.
Wages		62 22	44 22								106 44
Contingencies		11,551 05	941 25								12,492 30
Totals		11,613 27	985 47								12,598 74

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'No. 2.' OWNER D. F. MOORE CO.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From.	To.				
					$ cts.	cts.
Yamachiche	July 14	Sept. 13	6 feet.	25,084	5,176 43	·20·62

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages				78 00	81 00	36 90					195 90
Contingencies				1,380 09	2,956 00	744 53					4,980 53
Totals				1,458 00	2,937 00	781 43					5,176 43

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'No. 5.' OWNER, GREAT LAKES DREDGING COMPANY.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
Mission and Kaministiqui River	April 14	November 19	25 feet.	775,535	119,176 23	·15·36

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	108 00	104 00	104 00	144 00	84 00	128 00	208 00	99 66	.....	.....	979 66
Contingencies	7,001 64	19,224 40	20,633 92	20,001 86	15,187 12	12,233 51	14,140 34	9,773 78	.....	.....	118,196 57
Totals	7,109 64	19,328 40	20,737 92	20,145 86	15,271 12	12,361 51	14,348 34	9,873 44	.....	.....	119,176 23

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'No. 5.' OWNER, R. MACDONALD CO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Cobourg	May 9	August 16	22-23	55,720	6,606 77	·11·85

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	8 cts.	$ cts,	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	54 00	82 20	80 00	83 30	82 70	.....	.....	.....	.....	.....	382 20
Contingencies	.....	742 17	2,202 20	2,109 80	1,170 48	.....	.....	.....	.....	.....	6,224 57
Totals	54 00	824 37	2,282 20	2,193 10	1,253 10	.....	.....	.....	.....	.....	6,606 77

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'No. 6'. OWNER, GREAT LAKES DREDGING COMPANY.

Localities where Dredging was Performed.	Date		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	$ cts.
Fort William, Mission River.....	May 16.	Nov. 19.	25	544,698	92,965 37	0·17·06

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages.....	.....	56 00	104 00	208 00	84 00	104 00	128 00	99 66	.....	.....	783 66
Contingencies.....	.....	7,829 52	16,309 97	17,439 11	12,707 33	13,574 67	17 528 19	6,792 92	.....	.....	92,181 71
Totals.....	.....	7,885 52	16,413 97	17,647 11	12,791 33	13,768 67	17,656 19	6,892 58	.....	.....	92,965 37

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'No. 6'. OWNER, CIE INDUSTRIELLE DE SOREL.

Localities where Dredging was Performed.	Date		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
St. François du Lac	May 19.	Nov. 14.	6-10	79,192	12,070 60	0·15·24

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	39 00	78 00	78 00	81 00	73 20	.....	14 15	.....	.....	363 35
Contingencies	.....	1,129 95	4,321 75	3,582 02	2,141 07	.....	104 12	428 40	.....	.....	11,707 31
Totals	.....	1,168 95	4,399 75	3,660 02	2,222 07	73 20	104 12	442 55	.....	.....	12,070 66

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'No. 9.' OWNER, CANADIAN DREDGING AND CONSTRUCTION CO.

Localities where Dredging was Performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
Victoria Harbour	May 2	July 2	20-22 feet.	53,400	6,847 74	·12·82
Tiffin	July 4	Sept. 3	25 "	31,620	9,334 41	·29·52

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages		88 86	83 88	81 15	83 46						337 35
Contingencies		2,850 00	3,725 00	5,360 60	3,503 20	406 00					15,844 80
Totals		2,938 86	3,808 88	5,441 75	3,586 66	406 00					16,182 15

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'No. 9.' OWNER, PENETANG DREDGING CO.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From.	To.				
					$ cts.	$ cts.
Wanbaushene..	Sept. 5	Nov. 30.....	14 feet.	7,305	11,327 75	1·68·75

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	.....	... ...	.....	.....	80 84	80 84	81 07	.. ..	.....	242 75
Contingencies.	.....	.....	.....	.....	.. ..	4,992 50	3,365 00	2,727 50	....	....	11,085 00
Totals.....	.....	....	.....	....	. .....	5,073 34	3,445 84	2,808 57	.....	... .	11,327 75

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE '14', OWNER, C. S. BOONE DREDGING AND CONSTRUCTION CO.

Localities where Dredging was performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Picnic Island	July 6	October 12	22 feet	28,350	50,065 55	76 59

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July,	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages		21 00	83 00	84 02	83 41	80 32	80 21	21 08			453 04
Contingencies		No	werk	12,836 25	14,056 88	17,469 38	5,250 00				49,612 51
Totals		21 00	83 00	12,920 27	14,140 29	17,549 70	5,330 21	21 08			50,065 55

ANNUAL REPORT, from April 1, 1910 to March 31, 1911—*Continued*

DREDGE 'No. 15', OWNER, GREAT LAKES DREDGING CO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Fort William	April 26	December 10	25 feet	190,362	139,611 17	73 32

DETAILS OF EXPENDITURE

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	20 00	208 00	104 00	104 00	84 00	216 00	104 00	131 79	36 00	.....	1,007 70
Contingencies	1,941 54	13,403 65	23,871 36	34,029 36	23,617 01	8,714 83	16,809 66	14,121 14	2,094 92	.....	138,603 47
Totals	1,961 54	13,611 65	23,975 36	34,133 36	23,701 01	8,930 83	16,913 66	14,252 84	2,130 92	.....	139,611 17

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'NEHOC', OWNER, COHEN & SON.

Localities where Dredging was performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic yards Removed.	Expenditure.	Cost per Cubic yards.
					$ cts.	$ cts.
St. Placide	June 18	July 23	9-10	17,510	3,857 66	22 03
Montmagny	Aug. 22	Nov. 9	....	28,500	10,192 50	35 79

DETAILS OF EXPENDITURE.

——	April.	May.	June.	July.	August.	September.	October.	November.	December.	January February and March.	Totals.
	$ cts.	$ cts.	cts	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts
Wages	....	.....	33 00	60 00	67 50	65 00	57 50	27 50	.....	.....	310 50
Contingencies	.....	.....	1,265 71	2,498 95	1,345 75	4,067 00	3,244 50	1,345 25	.....	.....	13,739 66
Totals	.....	.....	1,298 71	2,558 95	1,413 25	4,132 00	3,302 00	1,345 25	.....	.....	14,050 16

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'OTTAWA', OWNER, L. COHEN & SON.

Localities where Dredging was performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic yards Removed.	Expenditure.	Cost per Cubic Yards.
					$ cts.	$ cts.
Nicolet	July 12	Nov. 14	9-10	74,008	16,606 51	22 43

DETAILS OF EXPENDITURE-

——	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Total.
	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages				51 75	81 00	78 00	78 00	36 00			324 75
Contigencies				1,284 80	3,961 76	3,825 80	4,910 40	2,299 00			16,281 76
Totals				1,336 55	4,042 76	3,903 80	4,988 40	2,335 00			16,606 51

ANNUAL REPORT from April 1, 1910 to March 31, 1911—*Continued.*

DREDGE 'OTTAWA.' OWNER, H. M. CONNOLLY.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Beauharnois	May 30	July 8	10 feet.	43,706	8,871 77	.20·29

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages		28 07	80 50	22 00							130 57
Contingencies		1,477 40	6,140 60	1,123 20							8,741 20
Totals		1,505 47	6,221 10	1,145 20							8,871 77

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'PELTIER.' OWNER, WINDSOR DREDGING COMPANY.

Localities where Dredging was Performed.	Date.		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	cts.
Rondeau	May 25	November 15	22 feet.	88,154	22,460 15	25·46

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts	$ cts.	$ cts.
Wages	.....	28 15	72 00	44 55	78 70	87 50	82 25	53 50	.....	.....	446 65
Contingencies	.....	1,006 25	5,123 75	1,625 00	3,250 00	6,375 00	2,571 00	2,062 50	.....	.....	22,013 50
Totals	.....	1,034 40	5,195 75	1,669 55	3,328 70	6,462 50	2,653 25	2,116 00	.....	.....	22,460 15

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'PRINCE WILLIE'. OWNER, W. J. POUPORE & CO.

Localities where Dredging was Performed.	Date From	Date To	Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per cubic Yard.
					$ cts.	Cts.
River du Loup en Haut	May 4. July 11.	June 15. Aug. 6.	4-6	42,891	9,287 77	21·65
St. François River	June 16 only.		8	484	96 80	20
Yamaska	June 20.	July 9.	6	23,366	4,235 13	18·12

Total cubic yards removed 66,741.

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March,	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages		75 00	44 25	172 05	51 25						342 55
Stores and Equipment					3 85						3 85
Contingencies		2,529 28	4,214 67	5,085 80	1,443 55						13,273 30
Totals		2,604 28	4,258 92	5,257 85	1,498 65						13,619 70

ANNUAL REPORT from April 1, 1910—*Continued.*

DREDGE 'PONTIAC'. OWNER, W. J. POUPORE CO.

Localities where Dredging was Performed.	Date		Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
Yamaska	May 4.	June 17.	6	49,068	8,991 34	18·32
St. François	June 20.	July 12.	6–8	25,650	5,205 80	20·29
Riv. du Loup en bas	July 19.	Nov. 2.	10 14	47,664	16,592 87	34·81

Total cubic yards removed 122,382

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	79 00	127 00	27 30	.....	82 50	87 00	.....	.....	.....	402 80
Contingencies	.....	5,263 72	6,487 32	4,319 52	5,038 44	4,602 84	3,796 98	879 39	.....	.....	30,388 21
Totals	.....	5,342 72	6,614 32	4,346 82	5,038 44	4,685 34	3,883 98	879 39	.....	.....	30,791 01

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'ST. LAWRENCE'. OWNER, MANLEY DREDGING CO.

Localities where Dredging was Performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	Cts.
Point Edward	April 27	April 30	16 feet.	5,908	1,149 19	.19·45
Sarnia	May 7	May 23	18 "	27,400	5,076 75	.18·52
Byng Inlet	June 14	Nov. 28	20 "	209,008	22,429 22	.10·73

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	15 00	81 00	183 43	81 75	83 25	80 25	80 25	80 75	.....	.....	685 68
Contingencies	1,073 44	4,950 20	2,096 64	4,262 16	4,211 76	4,262 16	3,756 48	3,356 64	.....	.....	27,969 48
Totals	1,088 44	5,031 20	2,280 07	4,343 91	4,295 01	4,342 41	3,836 73	3,437 39	.....	.....	28,655 16

ANNUAL Report from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'ST. PIERRE'. OWNER, ANTOINE ST. PIERRE.

Localities where Dredging was Performed.	Date.		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From.	To.				
					$ cts.	Cts.
St. Maurice River	April 25	Oct. 29	6 feet—8 feet	170,000	25,986 00	15·28

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	18 00	75 00	78 00	78 00	81 00	78 00	78 00	.....	.....	.....	486 00
Contingencies	614 25	4,392 75	4,131 00	3,483 75	4,453 55	4,328 25	4,006 50	.....	.....	.....	25,500 00
Totals	632 25	4,467 75	4,209 00	3,561 75	4,534 55	4,406 25	4,084 50	.....	.....	.....	25,986 00

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'SYDENHAM.' OWNER, CANADIAN DREDGING AND CONSTRUCTION CO.

Localities where Dredging was Performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
Tiffin	April 30	July 2	25 feet.	120,114	88,837 84	·73·96
	Oct. 12	Oct. 15	.....	.....	.....	.....
	Oct. 17	Oct. 29 and 31	.....	.....	.....	.....
	Nov. 1	Dec. 3	.....	.....	.....	.....
Victoria	July 4	Oct. 12	25 feet.	192,267	45,530 57	·23·67
Midland	Oct 25	.....	19 "	1,333	389 57	·29·22

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	49 62	80 32	81 17	80 84	83 28	80 94	54 35	80 75	27 62	.....	618 89
Contingencies	435 00	17,378 24	25,688 01	9,116 28	10,100 00	21,317 38	14,065 90	31,914 03	4,124 25	.....	134,139 09
Totals	484 62	17,458 56	25,769 18	9,197 12	10,183 28	21,398 32	14,120 25	31,994 78	4,151 87	.....	134,757 98

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'STEPHEN D.' OWNER H. DUSSAULT.

Localities where Dredging was Performed.	Date. From.	Date. To.	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	cts.
St. Charles River	Aug. 15.....	Nov. 19.....	15 feet.	88,847	8,179 98	·09·20

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages.....	.....	.....	.....	.....	35 00	62 50	65 00	21 25	.....	.....	183 75
Contingencies.....	.....	.....	.....	.....	778 95	2,736 45	3,176 73	1,304 10	.....	.....	7,996 23
Totals.....	.....	.....	.....	.....	813 95	2,798 95	3,241 73	1,325 35	.....	.....	8,179 98

ANNUAL REPORT, from April 1, 1910, to March 1, 1911—*Continued.*

SUCTION DREDGE 'SHUNIAH,' OWNER, GREAT LAKES DREDGING CO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Mission and Kaministiqui River	July 16	Nov. 19		287,379	73,281 63	·25·49

DETAILS OF EXPENDITURE.

——	April.	May.	June.	July.	August.	September.	October.	November.	December	January February and March.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages (No inspector.)											
Contingencies				11,772 07	9,094 32	16,532 41	20,739 40	15,143 43			73,281 63
Totals				11,772 07	9,094 32	16,532 41	20,739 40	15,143 43			73,281 63

ANNUAL REPORT, from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'TOMOSCO,' OWNER, GENERAL CONSTRUCTION CO.

Localities where Dredging was Performed.	Date. From	Date. To	Depth of Water made below Zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
					$ cts.	$ cts.
Valleyfield	June 24.	Nov, 21	8	21,124	4,957 11	·23·46

DETAILS OF EXPENDITURE.

——	April.	May.	June.	July.	August.	September.	October.	November.	December.	January February and March.	Total.
	$ cts.	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	3 cts.	$ cts.
Wages			27 00	84 55	81 00	78 00	78 00	66 75			415 30
Contingencies			180 17	1,132 73	1,021 79	630 21	867 57	700 34			4,541 81
Totals			207 17	1,217 28	1,102 79	708 21	945 57	776 09			4,957 11

ANNUAL REPORT from April 1, 1910, to March 31, 1911—*Continued.*

DREDGE 'TRENTON'. OWNER, WEDDELL & CO.

Localities where Dredging was Performed.	Date		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	$ cts.
Telegraph and Nigger Island	May 26	Sept. 8	14	21,575	65,003 96	3 01·29

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts,	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	15 56	80 25	77 24	83 80	22 12	.....	.....	.....	.....	278 96
Contingencies	.....	3,750 00	18,000 00	19,800 00	19,200 00	3,975 00	.....	.....	.....	.....	64,725 00
Totals	.....	3,765 56	18,080 25	19,877 24	19,283 80	3,997 12	.....	.....	.....	.....	65,003 96

ANNUAL REPORT from April 1, 1910, to March 31, 1911.—*Continued.*

DREDGE 'TOGO'. OWNER, R. WEDDELL & CO.

Localities where Dredging was Performed.	Date		Depth of Water made below zero.	Cubic Yards Removed.	Expenditure.	Cost per Cubic Yard.
	From	To				
					$ cts.	Cts.
Owen Sound	June 4	Sept. 26	18-22	105,640	15,105 25	14·20
Thornbury	Oct. 30	Nov. 2	17	18,182	4,446 68	24·45
Lion's Head	Nov. 10	Nov. 25	15	15,041	3,357 67	22·32

Total cubic yards removed 138,8631

DETAILS OF EXPENDITURE.

—	April.	May.	June.	July.	August.	September.	October.	November.	December.	January, February and March.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	.....	.....	75 90	78 00	81 00	80 75	77 00	54 50	.....	.....	447 15
Contingencies	.....	.....	3,138 80	3,724 00	5,067 30	2,859 50	4,074 72	3,598 13	.....	.....	22,463 45
Totals	.....	.....	3,214 70	3,802 00	5,148 30	2,940 25	4,151 72	3,652 63	.....	.....	22,909 60

BRITISH COLUMBIA.

GOVERNMENT DREDGES.

PERFORMANCE of Dipper Dredge 'Ajax' New Westminster, B.C., for the Twelve Months, April 1910, to March, 1911.

——	April.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
Cubic yards material handled	28690	25020	13140	12680	25920	11700	24660	9390	13390	3600	16800	28200	213190
Kind of material M.	10000	Mud & Clay.	Sand & Clay.	Sand & Clay.	C. 1800	O. S. 3660	Sand & Gravel.	Hard Sand.	S. & C. 12085	Sand &	Clay	.....	.....
Kind of material H.	.....				S. 24120	H.P. 8040			R. 1205	.....	.....	.....	.....
Total hours on duty	224·5	·210·	229·	215·	238·5	210·	215·	229·	224·5	219·5	210·	238·5	2663·5
Hours actually dredging	120	105·75	77	94·5	158·5	59	144·25	73·25	125·5	21·75	126·75	139·25	1245·5
Yards per hour actually dredging	239	236	170	134	163	198	171	129	107	165	132	130	Average 171
Per cent time actually dredging	53·7%	50·4%	33·8%	44·0%	66·3%	28·1%	67·3%	32·0%	55·8%	9·9%	60·4%	58·3%	46·7%
Per cent time lost moving to and from place of working	3·8%	1·5%	4·4%	6·4%	6·9%	3·7%	8·5%	5·0%	7·0%	1·4%	6·7%	5·9%	5·1%
Per cent time lost account repairs to dredge	1·0%	13·6%	15·5%	34·3%	7·4%	51·1%	2·0%	35·1%	12·5%	76·6%	12·8%	6·3%	22·3%
Per cent time lost account repairs to tug	.....	.....	39·5%	2·3%	.....	.....	.....	17·1%	.....	·5%	.....	.....	5·0%
Per cent time lost account repairs to scows	.....	.....	.....	.....	5·3%	.....	.....	.....	8·5%	.....	.....	.....	1·2%
Per cent time lost account trouble with scows	18·9%	24·6%	.....	.....	.....	.....	2·7%	.....	.....	.....	0·6%	9·8%	4·7%
Per cent time waiting for scows (tug service)	0·2%	.....	4·1%	1·5%	1·6%	9·1%	0·2%	.....	0·3%	.....	.....	.....	1·4%
Per cent time lost adjusting machinery of dredge	3·3%	2·1%	1·9%	2·5%	2·6%	1·7%	4·4%	1·3%	2·2%	0·5%	1·7%	3·0%	2·3%
Per cent time lost account of wind	0·7%	.....	0·4%	6·4%	5·7%	0·4%	.....	8·5%	2·5%	4·3%	6·3%	8·0%	3·6%
Per cent time lost account of tide	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Per cent time lost account of fog	.....	.....	.....	.....	.....	0·8%	3·4%	.....	.....	.....	.....	2·2%	0·5%
Per cent time lost account of coaling	7.1%	4·5%	.....	2·3%	4·0%	5·0%	6·3%	.....	5·1%	.....	8·1%	.....	3·5%
Per cent time lost washing boilers	6·7%	.....	.....	.....	.....	.....	.....	.....	.....	5·3%	.....	4·0%	1·3%
Per cent time lost account miscellaneous causes	4·6%	3·3%	0·4%	0·3%	2·0%	0·1%	5·2%	1·0%	6·1%	1·5%	3·4%	2·5%	2·4%

PERFORMANCE of DIPPER Dredge 'Mudlark' New Westminster, B.C., for the Twelve Months, April 1910, to March 1911.

Cubic yards material handled	16600	15950	14060	13650	15050	12850	15500	1200	6300	10650	13350	11650	146810
Kind of material	.....	.....	.....	.....	Mud	and	Clay.	.....	.....	.....	.....	.....	.....
Total hours on duty	224·5	210·	229·	215·0	238·5	210·	210·5	229·	224·5	219·5	210·	238·5	2659
Hours actually dredging	151·	158·	129·	131·5	145·5	122·	142·5	11·	59·5	99·	121·5	104·5	1375
Yards per hour actually dredging	110·	101·	109·	103·	103·	105·	108·	109	106·	108·	109·	111·	Average 107

PERFORMANCE of Agitator Suction Dredge 'King Edward,' New Westminister, B.C., for the Twelve Months, April 1910, to March 1911.

Cubic yards material handled	14.900	27.800	59,500	34,800	.....	21,000	61,600	45,200	36,650	17,500	40,300	48,400	437,650
Kind of material	.....	Silt	Gravel	Stones	and	Hard Pan	.....	.....	Silt Gravel Rock.	Clay Rock	Sand.	Silt, Sand Gravel	.....
Total hours on duty	237·5	250	258	237	239	225	225	235·5	242·5	230·5	210·	238·5	2,828·5
Hours actually pumping	132·75	122·5	161·25	74·25	.....	49	166·5	166·25	100·75	49·5	94·5	121·	1,238·75
Yards per hour actually pumping	338	227	369	464	.....	428	370	271	363	353	426·	400·	Aver. 353·

PEEFORMAMCE of Scraper suction Dredge, 'Fruhling,' New Westminister, B.C., for the twelve months, April 1910, to March 1911.

——	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
Cubic yards	23,200	67,200	128,800	77,600	23,200	82,800	90,400	86,400	86,400	65,600	86,400	96,800	924,800
Kind of material	.....	Sand	.....	.....	Gravel	.....	.....	.....	Sand	.....	.....	.....	.....
Total hours on duty	234	217	242 25	226·75	243	230·75	221·5	238·25	239·75	233·25	214·5	243 5	2,784·25
Hours actually pumping	18·5	55	101·25	61·75	43	76·25	82·75	80·75	86	66·5	92·5	98·25	862·5
Yards per hour actually pumping	1,254	1.222	1,272	1,257	507	1,217	1.092	1,069	1,005	987	934	985	Aver, 1,072

DREDGING.

Statement showing cost of dredges in British Columbia for 1910-11, showing amounts of material dredged and cost per cubic yard, including repairs to dredges, tugs, and scows, &c.

Name of Dredge.	Cost of Operating.	Cost of Repairing.	Total Cost.	Total amount of Material Dredged. Cubic Yards	Cost per Yard.
	$ cts.	$ cts.	$ cts.		Cts.
King Edward	41,538 87	15,078 78	56,617 65	443,650	12·7
Fruhling	37,948 10	8,835 58	46,983 68	924,800	5·5
Ajax	36,205 49	8,815 77	45,021 26	213,190	21·1
Mud Lark	22,200 50	7,011 66	29,212 16	146,810	19·9

NEW DREDGING PLANT, BRITISH COLUMBIA.

Dredge for Kootenay Lake.—The construction of the dredge *Bittern,* for service on Kootenay lake, was commenced on October 28, in so far as ordering the material, &c., is concerned. The necessary lumber was purchased in New Westminster and delivered at Nelson (where the work is being done) on November 8. Several days were occupied in unloading the lumber and other preliminary work, and on the 12th, actual work started on the barge for the dredge, and it was launched on December 8. On December 22, the machinery having arrived, it was unloaded and placed on the barge ready for installing. Owing to inclemency of the weather, work was closed down on December 31, and was not resumed until February 9. On March 31, the dredge and a coal barge were completed, and a start made on the construction of a dump scow. The dimensions of the dredge are:—length, 70 feet; width, 28 feet; and depth, 4 feet 11 inches, and is equipped with the following machinery:—one 8¼ by 10-inch double cylinder, double friction drum, hoisting engine, and a complete outfit for working a one-yard orange peel or a one-and-one-half yard clamshell bucket. The machinery was furnished by the American Hoist and Derrick Co., of St. Paul, Minn., and is of the same type as that on the dredge *Pelican.* The coal barge is 60 feet in length, 18 feet in width, and 4 feet 11 inches in depth, strongly constructed throughout and able to carry 60 tons of coal.

The amount expended on this service was $15,701.58.

THOMPSON RIVER LAUNCH.

A launch was built under contract, by the Vancouver Ship Yards Co., the cost being $4,540, f.o.b., the freight charges to Sicamous (where she was launched) were $170, and fittings, furniture, &c., were supplied. The dimensions are 44 feet in length with 9 feet of beam. She is of light draft and has sleeping and other accommodations for four persons. The power is a 30 horse-power gasoline engine (Buffalo), driving a 2 feet propeller in what is known at a 'tunnel stern.'

DREDGING PLANT UNDER THE CONTROL OF THE DEPARTMENT OF PUBLIC WORKS, 1910.

MARITIME PROVINCES.

'Canada'—type: elevator dredge.

Length over all, 132 feet; beam over all, 20 feet 5 inches; greatest working depth, 17 feet; least working depth, 6 feet 6 inches.

Average daily dredging capacity, 750 cubic yards.

'Cape Breton'—type dipper dredge.

Length over all, 91 feet 6 inches; beam over all, 38 feet 3 inches; greatest working depth, 32 feet; least working depth, 15 feet.

Average daily dredging capacity, 1,750 cubic yards.

'New Brunswick'—type: dipper dredge.

Length over all, 78 feet; beam over all, 29 feet; greatest working depth, 18 feet; least working depth, 7 feet.

Average daily dredging capacity, 500 cubic yards.

'Geo. McKenzie'—type: dipper dredge.

Length over all, 86 feet 6 inches; beam over all, 29 feet 6 inches; greatest working depth, 26 feet; least working depth, 7 feet.

Average daily dredging capacity, 300 cubic yards.

'Montague'—type: dipper dredge.

Length over all, 90 feet; beam over all, 38 feet; greatest working depth, 26 feet; least working depth, 7 feet.

Average daily dredging capacity, 700 cubic yards.

'Prince Edward'—type: dipper dredge.

Length over all, 80 feet; beam over all, 26 feet; greatest working depth, 25 feet; least working depth, 9 feet.

Average daily dredging capacity, 450 cubic yards.

'Northumberland'—type: hydraulic dredge.

Length over all, 138 feet; beam over all, 52 feet; greatest working depth, 50 feet; least working depth, 5 feet.

Average daily dredging capacity, 4,000 cubic yards.

'Restigouche'—type: hydraulic.

Length over all, 161 feet 8 inches; beam over all, 30 feet; greatest working depth, 40 feet; least working depth, 14 feet.

Average daily dredging capacity, 2,300 cubic yards.

'Fielding'—type: suction and elevator dredge.

Length over all, 147 feet; beam over all, 42 feet; greatest working depth, 54 feet; least working depth, 16 feet.

Average daily dredging capacity, 5,000 cubic yards.

'St. Lawrence'—type: elevator dredge.

Length over all, 170 feet; beam over all, 30 feet; greatest working depth, 28 feet; least working depth, 10 feet.

Average daily dredging capacity, 1,400 cubic yards.

'Pownall'—type: dipper dredge.

Length over all, 65 feet; beam over all, 25 feet; greatest working depth, 18 feet; least working depth, 4 feet.

Average daily dredging capacity, 300 cubic yards.

'No. 1'—type: stone lifter.

Length over all, 100 feet; beam over all, 35 feet; greatest working depth, 40 feet.

Capacity of grips, 50 tons.

ONTARIO AND QUEBEC.

'Challenge'—type: dipper dredge.

Length over all, 76 feet 6 inches; beam over all, 28 feet; greatest working depth, 21 feet; least working depth, 8 feet 6 inches.

Average daily dredging capacity, 500 cubic yards.

Attended by tug *Delisle.*

'Deschene'—type: dipper dredge.

Length over all, 50 feet; beam over all, 20 feet; greatest working depth, 16 feet; least working depth, 6 feet.

Average daily dredging capacity, 250 cubic yards.

Attended by tug *Aylmer.*

'Industry'—type: dipper dredge.

Length over all, 133 feet 4 inches; beam over all, 44 feet 8 inches; greatest working depth, 28 feet; least working depth, 14 feet.

Average daily dredging capacity, 3,000 cubic yards.

Attended by tug *Hercules.*

'International'—type: dipper dredge.

Length over all, 110 feet; beam over all, 42 feet; greatest working depth, 58 feet; least working depth, 10 feet.

Average daily dredging capacity, 1,250 cubic yards.

Attended by tug *Witherbee.*

'Lake St. John'—type: dipper dredge.

Length over all, 75 feet; beam over all, 27 feet; greatest working depth, 18 feet; least working depth, 6 feet.

Average daily dredging capacity, 200 cubic yards.

Attended by tug *Marie Louise.*

'Mattawa'—type: dipper dredge.

Length over all, 75 feet 6 inches; beam over all, 28 feet 4 inches; greatest working depth, 20 feet; least working depth, 12 feet.

Average daily dredging capacity, 850 cubic yards.

Attended by tug *Catherine C.*

'Nipissing'—type: dipper dredge.

Length over all, 75 feet; beam over all, 29 feet; greatest working depth, 22 feet; least working depth, 9 feet.

Average daily dredging capacity, 575 cubic yards.

Attended by tug *Cliffside.*

'No. 1' type: dipper dredge.

Length over all, 67 feet; beam over all, 26 feet; greatest working depth, 15 feet; least working depth, 6 feet.

Average daily dredging capacity, 250 cubic yards.

'No. 2'—type: dipper dredge.

Length over all, 66 feet; beam over all, 22 feet; greatest working depth, 15 feet; least working depth, 6 feet.

Average daily dredging capacity, 300 cubic yards.

Attended by tug *Eileen.*

'No. 3'—type: dipper dredge.

Length over all, 61 feet; beam over all, 25 feet; greatest working depth, 16 feet; least working depth, 6 feet.

Average daily dredging capacity, 450 cubic yards.

Attended by tug *Mina G.*

'No. 5'—type: dipper dredge.

Length over all, 85 feet; beam over all, 29 feet; greatest working depth, 27 feet; least working depth, 9 feet.

Average daily dredging capacity, 500 cubic yards.

Attended by tug *Sir John.*

'Ontario'—type: dipper dredge.

Length over all, 72 feet; beam over all, 25 feet; greatest working depth, 23 feet; least working depth, 10 feet.

Average daily dredging capacity, 550 cubic yards.

Attended by tug *St. Paul.*

'Ottawa'—type: dipper dredge.

Length over all, 103 feet; beam over all, 43 feet; greatest working depth, 35 feet; least working depth, 12 feet.

Average daily dredging capacity, 850 cubic yards.

Attended by tug *Monitor.*

'Progress'—type: dipper dredge.

Length over all, 91 feet; beam over all, 34 feet 4 inches; greatest working depth, 30 feet; least working depth, 10 feet.

Average daily dredging capacity, 1,000 cubic yards.

Attended by tug *Lisgar.*

'Quebec'—type: dipper dredge.

Length over all, 106 feet 9 inches; beam over all, 36 feet 8 inches; greatest working depth, 42 feet; least working depth, 16 feet.

Average daily dredging capacity, 2,700 cubic yards.

Attended by tug *Peel.*

'Queen'—type: dipper dredge.

Length over all, 66 feet; beam over all, 28 feet; greatest working depth, 20 feet; least working depth, 7 feet.

Average daily dredging capacity, 400 cubic yards.

Attended by tug *Dora.*

'Richelieu'—type: dipper dredge.

Length over all, 70 feet; beam over all, 21 feet 9 inches; greatest working depth, 15 feet 6 inches; least working depth, 8 feet.

Average daily dredging capacity, 400 cubic yards.

Attended by tug *Ottawa.*

'Sir Richard'—type: dipper dredge.

Length over all, 87 feet; beam over all, 33 feet 9 inches; greatest working depth, 20 feet; least working depth, 9 feet.

Average daily dredging capacity, 600 cubic yards.

Attended by tug *Trudeau.*

'St. Louis'—type: dipper dredge.

Length over all, 61 feet; beam over all, 25 feet; greatest working depth, 16 feet; least working depth, 6 feet.

Average daily dredging capacity, 325 cubic yards.

Attended by tug *Daisy.*

'St. Maurice'—type: dipper dredge.

Length over all, 70 feet; beam over all, 23 feet 8 inches; greatest working depth, 15 feet; least working depth, 6 feet.

Average daily dredging capacity, 300 cubic yards.

Attended by tug *Annette.*

'River des Prairies'—type: orange peel bucket dredge.

Length over all, 55 feet; beam over all, 25 feet; greatest working depth, 20 feet; least working depth, 3 feet 6 inches.

Average daily dredging capacity, 300 cubic yards.

Attended by tug *Alva.*

'No. 2'—type: stone lifter.

Length over all, 46 feet 3 inches; beams over all, 23 feet; greatest working depth, 15 feet.

Capacity of grips, 5 tons.

MANITOBA.

'Assiniboine'—type: hydraulic dredge.

Length over all, 115 feet; beam over all, 33 feet; greatest working depth, 12 feet; least working depth, 4 feet 6 inches.

Average daily dredging capacity, 725 cubic yards.

'Dauphin'—type: orange peel bucket dredge.

Length over all, 60 feet; beam over all, 32 feet; greatest working depth, 8 feet; least working depth, 2 feet 6 inches.

Average daily dredging capacity, 250 cubic yards.

'Red River'—type: dipper dredge.

Length over all, 82 feet; beam over all, 34 feet; greatest working depth, 15 feet; least working depth, 4 feet 6 inches.

Average daily dredging capacity, 350 cubic yards.

'Winnipeg'—type: dipper dredge.

Length over all, 77 feet; beam over all, 37 feet; greatest working depth, 20 feet; least working depth, 7 feet.

Average daily dredging capacity, 1,000 cubic yards.

'Winnipegosis'—type: orange peel bucket dredge.

Length over all, 60 feet; beam over all, 22 feet; greatest working depth, 8 feet; least working depth, 3 feet.

Average daily dredging capacity, 300 cubic yards.

SASKATCHEWAN AND ALBERTA.

'Last Mountain Lake'—type:—dipper dredge.

Length over all, 64 feet; beam over all, 24 feet; greatest working depth, 14 feet; least working depth, 6 feet.

Average daily dredging capacity, 600 cubic yards.

'Hawke'—type: scow with derrick and hand gear winches.

Length over all, 48 feet; beam over all, 16 feet (about); greatest working depth, 6 feet.

Capacity of grips, 1 ton.

'Athabaska —type: orange peel.

Length over all, 52 feet; beam over all, 26 feet; greatest working depth, 8 feet; least working depth, 3 feet.

Average daily dredging capacity, 100 cubic yards.

BRITISH COLUMBIA.

'King Edward'—type: agitator suction dredge.

Length over all, 125 feet; beam over all, 32 feet; greatest working depth, 45 feet; least working depth, 6 feet.

Average daily dredging capacity, 4,500 cubic yards.

'Mud Lark'—type: dipper dredge.

Length over all, 90 feet 2 inches; beam over all, 30 feet 4 inches; greatest working depth, 40 feet; least working depth, 13 feet.

Average daily dredging capacity, 650 cubic yards.

'Pelican'—type: orange peel bucket dredge.

Length over all, 58 feet; beam over all, 26 feet 8 inches; greatest working depth, —least working depth—As this dredge is nothing more than a wire rope derrick, the dredging depth depends on capacity of drum for rope.

Average daily dredging capacity, 275 cubic yards.

'Nakusp'—type: orange peel bucket dredge.

Length over all, 80 feet 8 inches; beam over all, 28 feet 2 inches; greatest working depth, least working depth, See *'Pelican.'*

Average daily dredging capacity, 500 cubic yards.

'Ajax'—type: dipper dredge.

Length over all, 110 feet 5 inches; beam over all, 40 feet; greatest working depth, 40 feet; least working depth, 18 feet.

Average daily dredging capacity, 700 cubic yards.

'Heron'—type: orange peel bucket dredge.

Length over all, 50 feet; beam over all, 18 feet 8 inches; greatest working depth, least working depth, see *Pelican* and *Nakusp.*

Average daily dredging capacity, 125 cubic yards.

'Fruhling'—type: scraper suction dredge.

Length over all, 187 feet; beam over all, 34 feet 6 inches; greatest working depth, 45 feet; least working depth, 16 feet.

Average daily dredging capacity, 5,000 cubic yards.

'Bittern'—type: orange peel bucket dredge.

Length over all, 70 feet.
Beam over all, 28 feet.
Greatest working depth,
Least working depth,
Average daily dredging capacity,
} Being built.

'Mastodon'—type: elevator dredge.

Length over all, 206 feet; beam over all, 36 feet 6 inches; greatest working depth, 50 feet; least working depth, zero.

Average daily dredging capacity, 5,000 cubic yards.

'Muskrat'—type: snag boat.

Length over all, 75 feet 9 inches; beam over all, 25 feet.
Least working depth,
Greatest working depth,
} See *Pelican.*
Average daily dredging capacity (not known).

'Samson'—type: snag boat.

Length over all, 115 feet 7 inches; beam over all, 30 feet.

'Cygnet'—type: snag boat.

Length over all, 118 feet 6 inches; beam over all, 27 feet.

'Naas River'—type: snag boat.

Length over all, ; beam over all, .

DRY DOCKS.

The Dominion government owns and operates three dry docks, viz.: the Lorne dry dock, at Lévis, province of Quebec; the Kingston dry dock, at Kingston, province of Ontario; and the Esquimalt dry dock, at Esquimalt, near the city of Victoria, in British Columbia.

LÉVIS DRY DOCK.

Lévis is situated on the north shore of the river St. Lawrence, opposite Quebec.

During the present fiscal year, the laying of a new 6-inch water main was made. This work was done by Mr. Edouard Ruel, for the sum of $3,600.

The placing of a sewer pipe, 9 inches diameter, was made for the sum of $500.

The removal of some stones at the entrance of the Lévis dry dock was done for the sum of $750.

The total expenditure for the present fiscal year, 1910-11, amounts to $4,850.

KINGSTON.

This dock was leased by the Department of Public Works, on May 1, 1910, for a term of twenty-one years, to the Kingston Shipbuilding and Dry Dock Co.

Prior to this lease, the property was carefully gone over to determine what repairs were necessary to place the dock property in first-class condition and also to inventory the government holding in detail; repairs authorized by order in council and carried out were as follows:—

The east inside quoin was taken down and rebuilt.

The top courses of the west inside quoin taken down and rebuilt.

The oak sealing strip on the pontoon was replaced in hard rubber.

The crib facing, upper cross-ties and flooring across the front and along the west approach to the dock, were largely renewed.

The cribwork along the west face of the property was taken out down to W.S and rebuilt with sloping floor for launching purposes.

The installation of the Shipbuilding Company was examined periodically and a record kept thereof in this office.

All work done there was by day labour, except the purchase and placing of the rubber sealing strip on the pontoon, which was by contract with the Shipbuilding Company.

ESQUIMALT.

The dock was occupied 153 days during the year, and 18 ships have been docked for cleaning, painting and repairs during that time. The total revenue collected was $20,303.13.

The staff was employed during the year in docking and undocking ships, and in keeping the plant in a proper state of repairs. The inside of the caisson was cleaned and painted, and all the fencing around the grounds, except that portion adjoining the dockyard, has been renewed and is now in good condition. Besides this work, small repairs have been made to the machinery and buildings, and the plant is now in good condition and ready at all times to handle any business that may offer.

The total expenditure during the year was, $15,000.03.

RIVER DU LIÈVRE LOCK.

This lock is situated at Poupore, 12 miles above Buckingham, on the Lièvre, in the county of Labelle.

Repairs and improvements to the locks, dam and slide works, during the year 1910-11, included: Replacing the sheeting at upper end of slide piers, with 6-inch tamarack; erecting a small pier for snubbing purposes; replacing a broken valve for same, and some repairs to the lockmaster's house.

Maintenance of these works during the season has cost: Wages, $870.53; extra labour on log jams, &c., $212.50; telphone, $60; supplies, $307.76; forming a total of $1,450.29.

YAMASKA LOCK.

In 1886, a lock and dam was constructed at Ile Cardin, on the Yamaska river, 1¾ miles below the village of St. Michael d'Yamaska; the lock gives a lift of 5¾ feet.

During the low water season, the main dam was repaired, also the eastern pier of the lock, by renewing the covering and sheathing and placing some stone rip-rap.

The expenditure for the fiscal year ending March 31, 1911, may be summarized as follows:—

For staff and maintenance	$1,608 96
" repairs	384 67
Total	$ 1,993 63

SLIDES AND BOOMS.

The Dominion government owns and operates slides and boom works, built to facilitate the passage of square timber, round logs, flatted and dimension timber, &c., on the River Ottawa and tributaries; on the St. Maurice river; the Saguenay river, and at Fenelon Falls and Burleigh Falls on the Trent river.

In the subjoined reports, the superintending engineers of the river works, Messrs. G. P. Brophy, F. X. Lefebvre, and J. C. Tachè, give particulars relative to the construction, improvements and repairs carried out under their supervision on government slides, booms, piers, dams, streams, buildings, &c., during the fiscal year; the expenditure incurred for staff, maintenance, improvements, &c.; the quantities of the various descriptions of timber that pass through their works, and other information of general interest and utility to lumbermen and the public at large.

REPORT ON THE OTTAWA RIVER WORKS.

(By G. P. Brophy, Superintending Engineer.)

OTTAWA, May 1, 1911.

The Chief Engineer,
Department of Public Works,
Ottawa.

SIR,—In accordance with the request contained in your circular of March 17 last, I have the honour to submit herewith the following report on the works under my charge, for fiscal year ended March 31, 1911.

STATIONS ON OTTAWA RIVER—MAIN STREAM—ORDINARY REPAIRS.

North Chaudiere Station.—At the upper slide, the piers at outlet were repaired. On the south side, a pier 28 feet long and seven sticks high was built of solid timber, and on the north side one of 26 feet in length and 3 feet in height, both filled with stone ballast. An oak apron, covered with iron straps, was laid immediately below the bulkhead, and the bottom of the slide, at several places, was patched with 3-inch hemlock plank. Five stop-logs were made for the slide, and the stringers of the bulkhead were repaired.

At the lower basin, where the foundations of the waste gate had become undermined to an extent of 10 feet in depth, a timber coffer-dam, 60 feet in length, standing in 19 feet of water, was built to stop the draft of water and thus allow the passage of timber and logs without interruption. In the early spring, foundations were laid for a new bulkhead, and the work was completed in time for the opening of the season's operations. The pier on the west side is 9 feet wide, and that on the east side 10 feet wide, both being 17 feet long by about 12 feet high, with a clear opening of 9 feet in width. An apron of timber was placed at the outlet of lower slide to prevent logs from being damaged at low water pitch. The upper portion of the waste gate adjacent to slide was rebuilt, and two stop-logs were made for this slide, one of which was sheathed with iron.

South Chaudiere station.—At this station, a single stick boom was provided at the entrance of the slide, and missing planks at the bottom of slide were replaced. During the winter, ice was cut from around the aprons and booms, to protect them from damage. The storehouses, workshop and sheds were also kept in an efficient state of repair.

Cheneaux station.—The expenditure here was incurred in repairing and painting the boats and setting two rock bolts to hold the booms, the work being performed by the boom master and his staff.

TRIBUTARIES OF THE OTTAWA RIVER.

Gatineau river.—Plank fenders were set on the corners of the piers, and stone filling was spread at the bases of piers to prevent scouring. A protection pier, 50 feet long, 10 feet wide, and 9 feet high, was built on the western bank of the river, nearly opposite the lane leading from the Chelsea road. Rip-rap was deposited on west side of new canal, at abutment of bridge, to guard against erosion. Additional stone ballast was also put in old protection piers, and a new scow, 30 feet in length, was built for general use in connection with the works. The fences, station house, storehouse and boats were kept in good repair and a supply of 3-inch hemlock plank was purchased for repairs to the booms and piers.

Madawaska river.—The timbers forming front of piers supporting the bulkhead of the Arnprior slide had become so much decayed as to require renewal. The fastenings of the guide booms were overhauled, the damaged chains and clevises being replaced by new ones.

On May 10, 1910, a break occurred in the slide at High Falls, which necessitated the rebuilding of a section 102 feet in length. At the close of the season, the remaining posts and sheeting were taken out and replaced with new materials, for a distance of 534 feet, so that the superstructure is practically all new. The platforms of both bulkheads were re-covered with 4-inch plank, and angle irons were secured on the stop-log gains to protect the corners. The sheeting of the flat dam at head of slide was patched, the old planking taken off the slide being used for this purpose. A section of the guide boom, 33 feet in length, was rebuilt with 14 by 14-inch timber.

The main governing dam at Ragged Chute having been destroyed by fire during the fall of 1910, had to be restored in order to facilitate the descent of logs and timber at this place. The dam is 331 feet long, 16 feet wide at base, 11½ feet at top and an average height of 12 feet. The pier is built of close-work in front and is filled with stone.

Coulonge river—High Falls station.—The superstructure of slide was jacked to grade at several places, and support posts resting on the foundation cribwork, were inserted. Fifty-four sills, 103 posts, 155 braces, and a large quantity of sheeting were renewed in the slide. One of the piers supporting the main guide boom was rebuilt from the water's edge; its dimensions are, 28 feet by 26 feet at water level, 17 feet by 26 feet at top and 12 feet high. Two sections of double boom were rebuilt at the entrance to the slide. Iron bars were placed on the sides of the slide at curves to save the sheeting from excessive wear.

Petewawa river.—At mouth of this river, a pier, 16 feet square, was raised four courses and filled with stone.

A spindle set at the entrance of first chute slide, and a hole in the governing dam to the north of the slide was repaired with 4-inch plank.

The posts and sheeting of slide at second chute was repaired and a timber floor was laid at the outlet.

Projecting rocks in the channel at third chute were blasted, as they proved a serious obstruction to the free passage of logs and timber at low water season.

The expenditure at Crooked chute was for timber which was used in repairing the slide, piers and dams.

At Poplar chute, just above the head of Lake Traverse, damaged stringers in the flat dam were replaced.

At Ragged chute, two flat dams were rebuilt. The one on south side is 107 feet long, 5½ feet high, with an average face of 12 feet. The other is 92 feet long, 6 feet high and 16 feet face. Both these dams are covered with 4-inch pine sheeting.

At McDonald's chute, a snubbing pier 9 feet square and 6½ feet high was constructed at head of the guide boom. The side piers of slide and the flat dam on north

side were patched. The sheeting in bottom of slide was relaid with 7-inch pine, upon which were placed iron bars 4 inches wide. The guide booms were also overhauled, and the chains and the clevises were repaired and adjusted.

Dumoine River.—The only expenditure on this river was for dynamite used by the slide master at High Falls station in removing rock obstructions in the timber channel.

The water in the Ottawa river and its tributaries was not as high as usual in the spring of 1910, so the works were not subjected to excessive strain, and in consequence, very little damage resulted. The maximum hight was reached about May 1, the water then fell considerably, but rose again early in June, on account of heavy rains, and remained at a level quite suitable for driving purposes throughout that month. In July, it commenced to fall and fell steadily during the following months, until it had attained a pitch lower than that at any time in the fall of 1909.

REMOVING BOOMS FROM CARILLON STATION—OTTAWA RIVER TO GATINEAU STATION—GATINEAU RIVER.

Your letter, No. 3417, of July 30, 1910, authorized the transfer of certain booms at Carillon station to the Gatineau boom, at a cost not to exceed the sum of $400.

These booms were formerly used at the crib slide at Carillon, but as they were no longer required in that connection, it was considered advisable to remove them to the Gatineau, where they might be turned to good account.

Accordingly, the booms were launched, cut into lengths to admit of their being taken through the Carillon and Grenville canals and towed to the Gatineau river, where they were rebored and securely laid aside for future use.

Statement of the number of pieces of square timber, saw logs, &c., that passed through the government slides and works, on the River Ottawa and its tributaries, during the fiscal year ending March 31, 1911, as furnished by the collector of public works revenue.

	Pieces.
Square timber	239
Saw logs	4,796,970
Boom and dimension timber	83,359
Cedars	71,057
Railroad ties	341,258
Fence posts	38,983
Telephone poles	73
	5,331,939

Also 70,332·87 cords pulp wood.

The revenue accrued on the above was $40,136.34.

In submitting the foregoing report,

I have the honour to be, sir,
Your obedient servant,

GEO. P. BROPHY,
Superintending Engineer, Ottawa River Works.

STATEMENT showing Expenditure for Repairs to the Ottawa River Works, for Fiscal Year ended March 31, 1911.

Name of Work.		Province.	Electoral District.	Expenditure Apr. 1 to Nov. 30, 1910.		Expenditure Dec. 1, 1910, to Mar. 31, 1911.		Expenditure Apr. 1, 1910, to Mar. 31, 1911.	
				$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
North Chaudiere Station	Ottawa River	Quebec	District of Wright	1,560 26		289 18		1,849 44	
South " "	Ottawa River	Ontario	City of Ottawa	101 65		303 72		405 37	
Chenevaux Station	Ottawa River	"	South Riding of County of Renfrew		1,661 91	34 40	627 30	34 40	2,289 21
Gatineau River	Tributaries of Ottawa River	Quebec	District of Wright	56 64		1,553 23		1,609 87	
Madawaska "	Tributaries of Ottawa River	Ontario	South Riding of County of Renfrew	1,209 56		4,936 56		6,146 12	
Coulonge "	Tributaries of Ottawa River	Quebec	County of Pontiac	1,344 30		947 76		2,292 06	
Petawawa "	Tributaries of Ottawa River	Ontario	North Riding County of Renfrew and County of Nipissing	987 25		3,451 08		4,438 33	
Dumoine "	Tributaries of Ottawa River	Quebec	County of Pontiac	8 00	3,605 75		10,888 63	8 00	14,494 38
					5,267 66		11,515 93		16,783 59
Transferring Booms from Carillon Station to Gatineau River		"	District of Wright		346 60				346 60
									17,130 19

May 1, 1911.

JOS. KENT,
Accountant.

REPORT ON THE ST. MAURICE RIVER WORKS.

(By F. X. Lefebvre, Superintending Engineer.)

Trois-Rivières, May 1, 1911.

Eugène D. Lafleur, Esq.,
Chief Engineer,
Department of Public Works, Ottawa.

Sir,—In answer to your circular of March 17, last, I have the honour to submit the following report on the work executed under my supervision on the St. Maurice river during the fiscal year ended March 31, 1911:—

CHANNEL BETWEEN GRANDES PILES AND LA TUQUE.

The water level in the St. Maurice river remained high enough, last summer, to allow the larger boats plying between Grandes Piles and La Tuque to navigate the whole season excepting for about one month. The *Stone-lifter,* dredge *St. Maurice* and tug *Annette* greatly helping navigation.

GRANDES PILES.

The pair of scows carrying the stone-lifter, was almost entirely rebuilt; necessary repairs were made to the dredge *St. Maurice,* the tug *Annette,* the scows and small barges. Four (4) spruce booms each 60 feet long by 5 feet in width, 2 spruce booms each 80 feet long by 5 feet wide, and 4 spruce booms each 25 feet long by 5 feet wide, were built and planked with 3-inch pine deals. Pier No. 3, of St. Jacques des Piles, was completed; the bottom part of pier No. 2, of Point à Madeleine, was built, and the necessary stone was quarried to fill the above piers.

PETITES PILES.

The upper part of pier No. 8 was taken down to low water line and rebuilt 5 feet higher than it was before. No. 6 pier was built 5 feet higher in order to allow us to stretch the booms with more facility and more safety. Boulders were placed around the foot of pier No. 11 to prevent it from being undermined.

In the large whirlpool at the foot of the Grand-Mere falls, 8 booms made of British Columbia fir of 30 to 32 feet in length by 30 to 32 inches in width, and some British Columbia fir boom 6 feet 8 inches wide that were carried over the Grand-Mere falls in the spring of 1909, and partly broken, were saved; taken to pieces and carried back to Petites Piles from which six booms of 30 to 32 feet long by 30 to 32 inches wide and one boom 100 feet long by 6 feet 8 inches wide were made, and were found very useful here.

One spruce boom 100 feet long by 6 feet wide was planked with pine and cedar deals 3 inches thick; 4 booms 6 feet 8 inches wide, forming a total length of 475 feet, were planked with 3-inch pine deals.

A boom stretched between the foot of Isle Arthur and 'Crique Sauvageau,' was repaired. A shed 30 feet long by 15 feet wide, to shelter the rigs of our men working here, was built.

The *Alligator No. 1* and the scows and barges were repaired.

RAPIDE DES HETRES.

Pier No. 4 was built 10 feet 4 inches higher and sheathed with 3-inch hemlock deals.

POINTE A BERNARD.

Three booms of British Columbia fir, 100 feet long by 6 feet 8 inches wide, were constructed, and placed, two of them last fall.

The dam at the head of the log slide at Shawinigan Falls was completed with concrete, and the slide that was mostly rotten, was replaced.

Twenty-four booms, 25 to 30 feet long by 32 inches wide, of long leaf southern pine bought from Mr. Randolph MacDonald, was made floatable by bolting a spruce length on both sides.

Pier No. 7 was completed, and a small pier 12 feet wide by 15 feet long, by 7 feet high, between the new and the old dam of the Shawinigan log slide, was built.

The piers No. 5 and 7 were sheeted with 3-inch hemlock deals, *Alligator No. 2* and the scows and barges were repaired.

SHAWINIGAN LOWER BAY.

A scow 45 feet long by 9 feet wide was built to stretch the booms below the Pointe à Chevalier; the glance boom at Pointe à Chevalier was planked with 3-inch pine deals of a total length of about 1,700 feet, and of a uniform width of 4 feet. Opposite the foot of the Shawinigan Falls an anchor pier 12 feet long by 12 feet wide and 5 feet high was constructed.

TROIS RIVIERES.

Six large booms, 4 near the Canadian Pacific railway bridge, that were damaged last spring, and two near the toll bridge, which were damaged the spring before, were repaired.

Eight booms made of British Columbia fir, each 100 feet long by 6 feet 8 inches wide, and planked with 3-inch pine deals were built and placed. Near the Canadian Pacific Railway bridge a small pier 12 feet square by 10 feet high was constructed to reinforce an old pier. Above the Canadian Pacific Railway bridge from the low water level line up to three pieces were rebuilt, and four others were repaired and planked with 3-inch pine deals.

Below the toll bridge, from the low water line up, two piers were rebuilt and planked with 3-inch pine deals.

Beside the above works, all the necessary works in regard to the maintenance of the channel between Grandes Piles and La Tuque, were attended to, such as the laying of the buoys in the spring and taking them to their winter quarters in the fall; the whitewashing and repairs of the beacons; and the cleaning up of the channel with the stone-lifter. The necessary works in regard to the maintenance of the booms, such as their stretching in the spring and putting them back to their winter quarters in the fall after attending to their displacements, closing or opening them in accordance to the demand of the lumber firms were also done.

In regard to the dredging operations made by the dredge *St. Maurice* between Grandes Piles and La Tuque, and of the dredge *St. Pierre* at the mouth of the St. Maurice river, two separate reports have already been made and sent to the department previous to this one.

I have the honour to be, sir,
Your obedient servant,

F. X. LEFEBVRE,
District Engineer.

REPORT ON THE SAGUENAY RIVER WORKS.

(By J. C. Taché, Superintending Engineer.)

Chicoutimi, May 15, 1911.

E. D. Lafleur, Esq.,
Chief Engineer, Department of Public Works,
Ottawa.

Sir,—The Saguenay booms are situated on the Saguenay river, about six miles above Chicoutimi.

An alligator tug, called *Saguenay No. 102,* was purchased for the sum of $3,350. Chains, anchors and round logs were also bought. The amount expended

for maintenance, repairs, rent of land, stretching wintering, chains, anchors, rent of a boat last spring, &c., was	$11,126 05
Alligator tug	3,350 00
	$14,476 05

All the usual works in connection with the maintenance of the booms was executed, they were placed last spring, after having made the necessary repairs; they were opened and closed when required by the lumber companies, and, last fall, they were placed in winter quarters.

I have the honour to be, sir,
Your obedient servant,

J. C. TACHE.

GOOSE ISLAND ENCAMPMENT.

Goose Island encampment is situated on the North Saskatchewan river, approximately 75 miles southwest of Edmonton, by road, and approximately 125 miles up the river by water.

The nearest railway stations are Stoney Plains on the Canadian Northern railway, about 50 miles, and Wabamun on the Grand Trunk Pacific, about 24 miles. Summer traffic, however, always goes to Stoney Plains, owing to the difficulties of the Wabamun trail.

No village exists at Goose island, the country being sparsely settled with homesteaders. The nearest post office is Burtonsville, 1½ miles west of the head of the island.

On request or application of the lumbering interests of the North Saskatchewan river the Department of Public Works undertook to construct works at this point for the purpose of retaining the logs, during high water season, by means of a pocket in the smaller channel north of Goose island. In the past, many logs have been lost in flood season.

Surveys for this work were made in 1909, and the work was started in the month of November.

The general plan of the work to be done consisted of a pile dam 293 feet long, and about 18 feet high, across the north channel near the foot of the island. This dam was to be for the purpose of forming a dead water pool in which the logs might be stored, and passed down river through sluice gates as required.

The head of this channel is divided in two by a small island. One of these divisions was to be blocked by a row of close-piling, called a 'moose fence,' 472 feet long.

The logs were to be directed to the other divisions of this channel by shear booms, attached to four piers placed at intervals above its head, and farther guided down the channel by a boom maintained against a row of piling some 1,500 feet long.

At the end of the fiscal year, 1909-10, camps had been built near the head of the island, the moose fence and two of the piers at the head of the channel were completed, being built of cribwork with close-face of black poplar and were filled with stone and gravel but without a ballast floor. Two piers, similar to these, were started about 100 feet above the dam. Work had been started at the dam, and about 40 feet on the island side had been built, work had also been done in preparing booms, &c. The expenditure to March 31, 1910, was $19,967.05.

During the early part of the fiscal year, 1910-11, the work proceeded along the plans described. Camps were constructed near the dam site in order that the men might be nearer work, and the dam was practically completed with the exception of some bracing and ballasting, when, on May 27, the summer flood tore out 119 feet of it and carried it away. The same flood washed out a channel at each end of the moose fence, 65 and 25 feet wide, respectively. Following this, work was carried on, completing the remaining part of the dam. The two piers just above the dam were completed. These were for the purpose of holding booms to protect the dam from the force of the logs.

Two more piers were also constructed above those built the year before at the head of the channel. These piers, which were never completed, differ from the others in being made of piles rather than cribwork. The proposed row of piling, numbering 114 was driven at the head of the channel to hold the booms in place. A number of booms, many of which were started in 1909-10, were completed. The total length of booms constructed were:—

	Feet.
4 stick booms with wings	777
3 stick booms with wings	754
3 stick booms without wings	440
2 stick booms with wings	1,778
2 stick booms without wings	1,240
Making a grand total of	4,989

Work was closed down on July 28, owing to the fact that all available moneys were expended. A caretaker and two watchmen were left on the work. The caretaker was dispensed with on December 31; one watchman dismissed on February 14, and the other watchman took charge of the work for the remainder of the year.

Active construction work was carried on from April 1, to July 28, 1910.

During March, 1911, care has been taken to place all loose lumber, as far as possible, beyond the reach of spring floods. A watchman remains in charge of the Government property, paid at the rate of $50 per month.

The total expenditure on the work to March 31, 1911, according to certified accounts sent in, amounted to $49,797.17

Expenditure for 1910-11, $29,830.07.

BRIDGES AND ROADS.

It may be stated that, in the older provinces of the Dominion, the federal government has confined itself, as a rule, to take under its exclusive control and make provisions towards the construction and maintenance of important interprovincial road bridges and bridges required across waterways.

In the sparsely settled districts of the Northwest Territories, the government of Canada has undertaken to provide for the erection and maintenance of ordinary road

bridges over large streams; bridges that are urgently needed to afford uninterrupted communication through trails and highways of national importance, which neither the municipalities to be more immediately benefited by the structures nor the territorial authorities most directly concerned, could be expected to erect and maintain at their sole expense.

During the last fiscal year, works have been executed on the following:—

ONTARIO AND QUEBEC.

BRIDGES AT OTTAWA, AND ROADWAY AND BRIDGE APPROACHES BETWEEN OTTAWA AND HULL. —ORDINARY REPAIRS.

At the easterly abutment of Laurier bridge, accumulations of clay were removed from around the bases of the steel support columns, and trenches were dug to provide drainage.

Some small repairs were made to the pavement on the Sappers' bridge.,

The roadway at Chaudiere slide bridge was cleaned frequently, and the gratings and drainage chambers were kept free from obstructions.

The flooring of the Union bridge was patched, the bridge was cleaned often and a supply of hemlock plank secured for future repairs.

The Hull slide bridge was cleaned regularly; the guard rails were repaired and painted; the sidewalks were renewed, and the pavement was taken up at several places and relaid to grade.

During the winter months, ice and snow were removed from the different bridges and causeway leading to Hull, and when the walks were in a slippery condition, sand was spread over their surfaces to guard against accident to pedestrians.

LAURIER BRIDGE, OTTAWA—CLEANING AND PAINTING.

Your letter No. 6,295, of November 14, 1910, authorized an expenditure of $875 for cleaning and painting Laurier bridge, over the Rideau canal in this city.

The old paint, rust, &c., were first removed from the steel work by the sand blast process, after which two applications of 'Esco Steel coating' were spread over the steelwork. The work was executed under contract by the Canadian Sand Blast Company, in a very thorough manner, and the process adopted by this company is to be highly commended.

POND CREEK BRIDGE, GATINEAU.

Pond creek is the outlet of Leamy's lake, and this bridge spans that stream about midway between the lake and the Ottawa river, and is on the main road leading from Hull city to the village of Gatineau Point.

Two additional stringers of British Columbia fir were placed at the opening, spanned by the truss. These were made of two plies of 3 by 12 planks, bolted together with the joints well broken. The stringers were secured by 1-inch iron staples to two steel I beams, 10 inches in depth, which rest upon the bottom chords of the truss. The floor beams are of 3 by 12-inch hemlock, and the roadway is of the same material, two tiers 3 inches in thickness, the bottom being laid longitudinally and the top diagonally. Angle plates of ½ by 14-inch by 4 feet iron were placed at the base of truss to prevent lateral movement of the heels of the truss timbers. The posts and ribs of the guard railing were repaired where broken or decayed, and at the southern approach, the floor was lowered 23 inches to improve the grade.

The above repairs were undertaken under the authority of your letter, No. 2268, dated June 18, 1910.

EXPENDITURE on Bridges for Year ended March 31, 1911.

Name of Work.	Province.	Electoral District.	Expenditure April 1 to November 30, 1910.		Expenditure December 1, 1910, to March 31, 1911.		Expenditure April 1, 1910, to March 31, 1911.	
			$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ordinary repairs :—								
Bridges at Ottawa and Roadway and Bridge approaches between Ottawa and Hull—								
Laurier Bridge	Ontario	City of Ottawa	.....		25 50		25 50	
Sapper's Bridge	Ontario	City of Ottawa	5 80				5 80	
Chaudiere Slide Bridge	Ontario	City of Ottawa	146 75		126 25		273 00	
Union Bridge	Ont. & Que.	City of Ottawa and District of Wright.	673 78		97 25		771 03	
Hull Slide Bridge	Quebec	District of Wright	.....		15 38		15 38	
Roadway and bridge approaches between Ottawa and Hull	Ont. & Que.	City of Ottawa and District of Wright.	612 08	1,438 41	308 88	573 26	920 96	2,011 67
Special Repairs—								
Pond Creek Bridge	Quebec	District of Wright.	.....	1,749 94	.....	.....	.....	1,749 94
Laurier Bridge	Ontario	City of Ottawa	.....	875 00	.....	.....	.....	875 00
								4,636 61

May 1, 1911.

JOS. KENT,
Accountant.

CHAPEAU.

The village of Chapeau on Allumette island, Pontiac county, is connected to the mainland by a wooden bridge, built in the 60's, across the Culbute channel of the Ottawa river.

At its last session, parliament voted $25,000 towards the erection of a bridge. A contract for the construction of the abutments, piers and approaches, was entered into with Fallon Brothers, for an approximate sum, at unit prices, of $14,895. The contract consisted in the construction of two roadway approaches, two abutments and six piers. Work started in June, 1910, and was practically completed by the end of March.

Expenditure to March 31, $18,902.81.

MATAPEDIA.

Matapedia, Bonaventure county, situated at the junction of the Matapedia with the Restigouche river, some 15 miles west of Campbellton. It is an important station on the Intercolonial railway, and the starting point of the Quebec Oriental railroad. Being the headquarters of the Restigouche Salmon Club, it renders the place renowned in all parts of Canada and the United States.

During the last fiscal year, the Interprovincial highway bridge constructed in 1909, over the Restigouche river, was painted with 'Esco coating.'

The construction of approaches, as per contract entered into on September 4, 1909, with Mr. D. W. B. Reid, of Halifax, have been completed.

On Quebec side, the approach is 1,381 feet in length by 40 feet in width, fenced on both sides with wire fencing (I.C.R. standard). The surface of the roadway, which is 20 feet in width is completed by a layer of clean river gravel, six inches thick; the outsides of road embankments, where elevated over four feet, are protected by heavy stone rip-rap from two to three feet in thickness; a dump fence has also been placed on these portions of the approach. Two cedar box-culverts have been built and are protected at both ends by hand laid rip-rap reaching to the cover.

Where the approach joins the bridge, a crib-work, 60 feet long, 15 feet wide and 14 feet high, well ballasted with stone has been built as protection against the ice and water during spring freshets.

The approach on the New Brunswick side, consists only of an embankment, 268 feet long and 20 feet at the top, with a batter of 1½ in 1. The surface is completed by a layer of clean river gravel and protected on the east side by a dump fence.

The amount paid to Mr. D. W. B. Reid, is $8,922.32.

All the required land for the site of the approaches has been given by the Restigouche Salmon Club.

The work was started on July 18 and completed November 10, 1910.

NEW BRUNSWICK.

INTERNATIONAL BRIDGE OVER RIVER ST. JOHN BETWEEN ST. LEONARDS, N.B., AND VAN BUREN, MAINE.

This work was undertaken during the fiscal year and placed under the joint supervision and direction of two commissioners; one being the State Commissioner of Highways of the State of Maine, Mr. Paul Sargent, by authority of the Maine state legislature, and the other Mr. S. J. Chapleau, of this office, by direction of the Department of Public Works, authorized by order in council.

The State of Maine and the Dominion government each having appropriated $37,500 for the work, $75,000 in all.

Mr. E. E. Greenwood, C.E., of Skowhegan, Me., was appointed by the commission to prepare plans and specifications subject to approval.

The work consists in placing a highway bridge across the River St. John, between St. Leonards, N.B., and Van Buren, Me., connecting the main highways of those two towns and strong enough to accommodate 40-ton electric car traffic in the future.

Surveys, plans and estimates were consequently prepared, bids called for in both the United States and Canada for both substructure and superstructure.

The bids were opened in public at Augusta, Me., before representatives of both the State of Maine and the Dominion of Canada, and the contracts awarded, for the substructure to Messrs. Powers & Brewer, of Grand Falls, N.B., and the superstructure to the Penn Bridge Company of Beaver Falls, Pa., each being the lowest tenderer.

The substructure was completed in a most satisfactory manner last fall, and the material for the superstructure delivered during the winter. The bridge will be complete and ready for traffic by August of the coming year.

SASKATCHEWAN.

EDMONTON BRIDGE.

The Edmonton bridge crosses the north Saskatchewan river between Edmonton and Strathcona. It is 700 feet long between abutments, consisting of four 175-foot spans, with a roadway 17 feet wide, and two sidewalks, 7 feet each. The bridge is constructed of steel, with Pratt trusses of seven 25-foot panels each. The approximate dead load per lineal foot is 2,420 lbs., including an allowance of 600 lbs. per lineal foot for snow load.

The piers are of concrete, approximately 43 feet high, above the river bed. These are based on concrete foundation, deposited in caissons and, in one at least, piles were driven before the concrete was deposited.

The bridge was constructed in the year 1899.

In 1901, an indenture was drawn up by which the Edmonton, Yukon and Pacific railway was allowed to place tracks on the bridge and to run their trains across, subject to certain responsibility regarding accidents, improvements, &c.

In November, 1908, an agreement was drawn up whereby the Edmonton Radial Electric railway, belonging to the city of Edmonton, was allowed to place rails on the bridge and a street car service was inaugurated across the bridge between Edmonton and Strathcona.

This agreement was also subject to certain conditions whereby the Edmonton Radial Railway assumed responsibility in regard to the direction of traffic and the upkeep of the bridge.

During the fiscal year 1909-10, the flooring of the bridge was repaired, and work commenced at placing rip-rap around two of the piers, where there was evidence of scour. Some 239 cubic yards of stone were placed.

During the fiscal year 1910-11, 109 cubic yards more rip-rap were added.

The accounts for the whole work amounting to $2,157.17 were paid during the year 1910-11.

In September, 1910, one compression member, near the Edmonton end of the bridge, was seriously damaged by a derailed freight car. Temporary repairs were made at once by the Canadian Northern Railway Company, and in March, 1911, the damaged member was replaced by a new one. The work was done by the Edmonton Iron Works under contract to the Canadian Northern Railway Company.

CEMENT LABORATORY.

OTTAWA, April 27, 1911.

E. D. LAFLEUR, Esq.,
Chief Engineer,
Public Works Department.

SIR,—I have the honour to transmit herewith the annual report of the cement laboratory for the year ending March 31, 1911.

During the last twelve months, two thousand three hundred and sixty (2,360) samples were submitted to this office for test purposes, which number show an increase of 878 samples over the same period last year. During the year, 14,160 briquettes, 123 chemical analysis, 760 specific gravity tests and 48 other tests were made.

The following table shows the increase in work and samples received in the laboratory in the last seven years.

Year.	Samples received.	Briquettes made.	Increase over 1904. Per cent.
1904	237	1,422	
1905	756	4,536	219
1906	835	5,010	253
1907	1,246	7,476	426
1908	1,454	8,724	514
1909	1,481	8,886	525
1910	2,360	14,160	896

Of the 2,360 samples received and tested, 2,232 were accepted and 128 rejected. The 128 samples condemned were of the following brands:—

				Bags.
Sun Portland cement	36	samples,	representing	1,440
Colonial Portland cement	36	"	"	1,440
National Portland cement	27	"	"	1,080
International Portland cement	20	"	"	800
Star Portland cement	9	"	"	360

The samples received were from the following:—

Engineers of the Public Works Department, 2,351 samples.
Outside engineers, 5 samples.
Contractors, 4 samples.

The following table shows the number of samples received from the different brands:—

International	1,273
Lehigh	268
Vulcan	213
National	207
Monarch	137
Star	81
Stirling	72
Sun	36
Colonial	36
White	9
Gravel and sand	8
Concrete blocks	8
Samples of water	4
" chains	2
" cement, unmarked	2

Atlas cement	1
Wolverine	1
Universal	1
Vulcanite	1

With the vast increase of work it was found necessary to employ another physical tester, which started to work on March 22.

This laboratory is maintained almost exclusively for the purpose of making tests of materials delivered under government specification, for the purpose of determining whether they meet the standard of the quality prescribed. The work accomplished during the year, showed more than 59 per cent increase over that of the previous year, this increase is due to the increased demands of various government engineers for its services and is a strong argument in favour of the necessity for such a laboratory.

Lack of funds and space has prevented the inauguration of any new work, and the work accomplished has consisted in the testing of cement generally and a few pieces of structural material. The rate of heat conductivity of concrete should be carefully studied, the enormous annual fire losses in this country should be a sufficient argument for the need of such investigation. These investigations can be properly undertaken by the government since it does not insure its buildings, and for this reason it is in their interest to erect the most fire resistive type of buildings possible, which means a building that will offer a maximum resistance to fire within and without.

In addition to the regular routine work in the chemical laboratory, which consists of the analysis of cement, &c., there should be carried on investigations of the effects of alkali on cement, concrete, mortars, &c., a chemical study of the action of sea water on cement, concrete and various structural materials same as carried on at the Atlantic City station by the American government, also investigation of the materials for waterproofing of cement, concrete and mortars.

As mentioned above, on account of lack of space, funds and machinery, it has been impossible to carry on any of the above mentioned important tests and investigations, and it is very urgent that the government supply this laboratory with larger quarters and vote a certain sum of money (of say $15,000 to $25,000) every year for its maintenance and investigations.

I have the honour to be, sir,
Yours obediently,

GEO. E. PERLEY,
Director.

CONCLUSION.

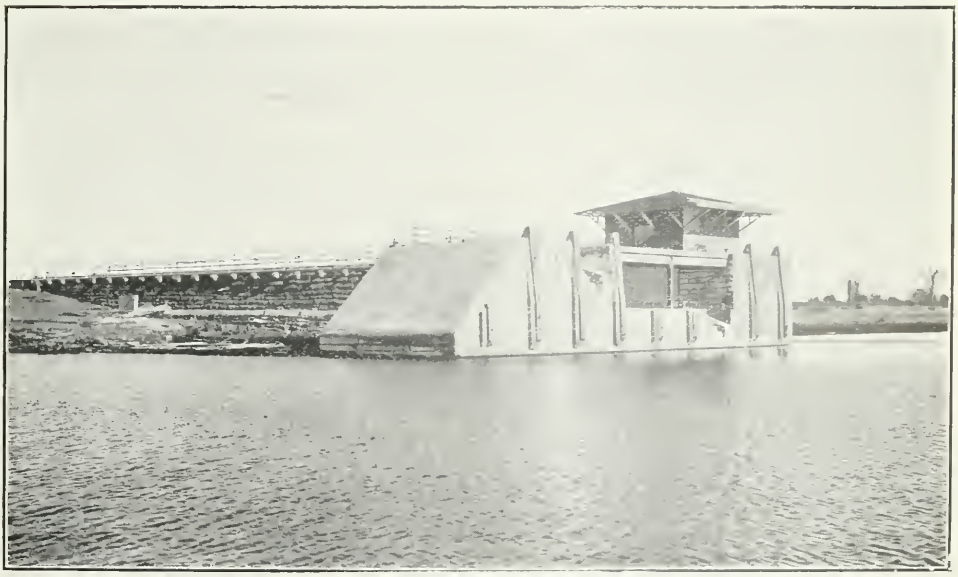
During the past fiscal year, the numerous works, under the immediate control of this branch of the department, have been carried on very successfully.

Minor repairs have been executed economically and promptly. The larger and more important works at St. John, N.B.; Quebec; Port Arthur and Fort William, Ont.; the St. Andrews lock, on Red river, Man., and the works of improvement on the Fraser and Columbia rivers, British Columbia, have proceeded satisfactorily and have kept pace with the requirements of the rapidly increasing trade.

In closing this report, I wish to extend to all my assistants my most sincere thanks, and to assure them that I fully appreciate their ability and energy in upholding the enviable reputation for efficiency so long possessed by this branch of the department.

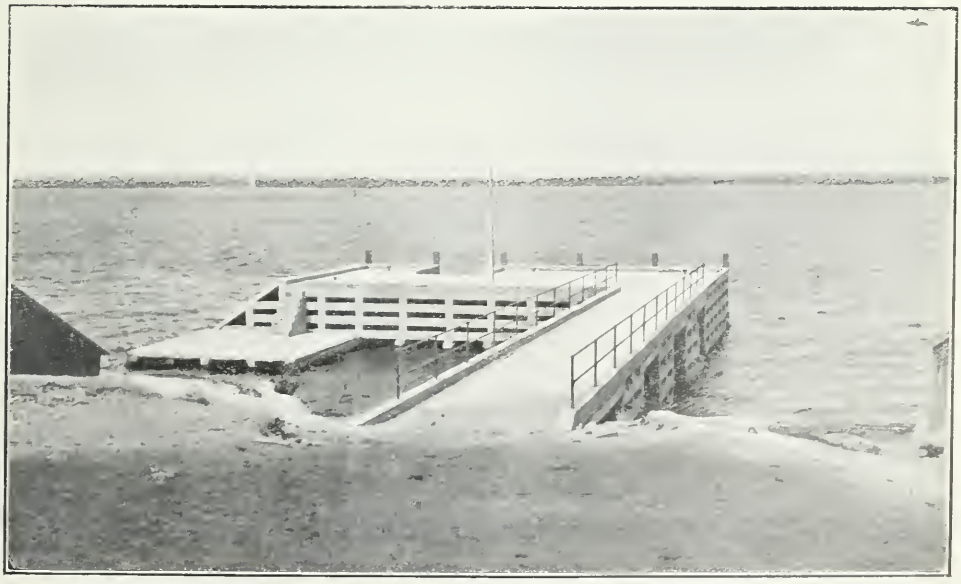
EUGENE D. LAFLEUR,
Chief Engineer.

Cumberland, Ont. Double deck cribwork wharf.



Masson, P.Q. Concrete cribwork

Silver Centre, Ont. Pilework wharf and ice breakers.



Arnprior, Ont. Open concrete cribwork.

Depot Harbour, Ont., Concrete Timbers.

PART V

REPORT ON GOVERNMENT TELEGRAPH LINES

FOR TH

FISCAL YEAR ENDED MARCH 31, 1911.

DEPARTMENT OF PUBLIC WORKS,
OFFICE OF THE GENERAL SUPERINTENDENT,
OTTAWA, ONT., Sept. 1, 1911.

R. C. DESROCHERS, Esq.,
Secretary, Department of Public Works.

SIR,—I beg to submit herewith my report on the Government Telegraph Service for the fiscal year ended March 31, 1911.

This report, as usual, is prefaced by a list to the present date of the land lines and cables in operation; with data of lengths, year of construction, number of offices at present established, and an estimate of the traffic handled in each instance.

The usual tabular statements giving list of offices, operating staff, &c., in the several districts are appended to the report; likewise the tariff sheets, showing the rates charged for messages on the several lines.

I have the honour to be, sir,
Your obedient servant,

D. H. KEELEY,
General Superintendent.

THE GOVERNMENT TELEGRAPH SERVICE

DOMINION OF CANADA

HEAD OFFICE: DEPARTMENT OF PUBLIC WORKS, OTTAWA.

(July 1, 1911.)

EXECUTIVE.

The Hon. William Pugsley, Minister of Public Works.
J. B. Hunter, Esq., Deputy Minister of Public Works.

STAFF AT HEADQUARTERS.

D. H. Keeley, General Superintendent.
M. W. Crean, Technical Assistant to Sperintendent.
J. E. Gobeil, Technical Assistant to Superintendent.
Miss A. Hardcastle, Secretary to General Superintendent.
P. G. Burgess, Accountant, Telegraph Branch.
J. E. Bray, Assistant Accountant, Telegraph Branch.

GENERAL INSPECTORS.

A. B. McDonald, North Sydney, Cape Breton, lines in Nova Scotia and New Brunswick.
J. S. Macdonald, Edmonton, Alta., lines in Northwest and south British Columbia.

SUPERINTENDENCIES.

Edwin Pope, Quebec, dist. supt., North Shore and G.N.W. traffic.
J. C. Taché, dist. supt., Chicoutimi district and North Shore to Bersimis.
E. H. Tetu, Long Point of Mingan, dist. supt., North Shore, East Bersimis.
P. Pouliot, dist. supt., Quarantine line, &c., to Grosse Isle.
A. Malouin, dist. supt., West Point, Anticosti Island.
A. Le Bourdais, Grindstone, dist. supt., Magdalen Islands.
D. C. Dawson, St. John, N.B., dist. supt., Cape Breton system.
Mrs. C. C. Seely, Grand Manan, N.B., dist. supt., Bay of Fundy system.
J. McR. Selkirk, Leamington, Ont., dist. supt., Pelee Island system.
Robt. C. Macdonald, Edmonton, Alta., dist. supt., Northwest Territories.
Wm. Henderson, Victoria, dist. supt., British Columbia, south.
L. A. Palmer, Summerland, B.C., supt., Penticton line.
J. T. Phelan, Vancouver, B.C., supt., Yukon system
H. Gilchen, Whitehorse, Y.T., dist. supt., Atlin-Boundary.

GOVERNMENT TELEGRAPH SERVICE.

Location of Lines.	Points connected.	Year.	Length of Lines. Land Lines.	Length of Lines. Cables.	Length of Lines. Total.	Number of Offices.	Messages Sent.
			Miles Wire.	Kt's.			
Newfoundland...	Port au Basque—Cape Ray	1883	14		14	2	
Nova Scotia.....	North Sydney—Meat Cove (with loops).	1880-02	165½	.....			
" ..	Across Bras d'Or channel	1880	.....	½			
" ..	" St. Anns Harbour	1887	.....	¼			
" ..	" Ingonish Harbour	1887	.....	¼	167	22	
" ..	French River	.....	.....	¼			
" ..	Englishtown	.....	.....	¼			
" ..	Big Bras d'Or—Kempt Head	1904	20	.....	20	3	
" ..	Meat Cove—St. Pauls Island	1890	.....	20			
" ..	On St. Pauls Island	1890	3	.....	23	1	
" ..	Bay St. Lawrence to Money Point	1907	8	.....	8	4	
" ..	Mabou—Meat Cove	1887-00	109	.....	109	12	
" ..	Barrington—Cape Sable	1883	16	.....			
" ..	Across Bear Point Channel	1883	.....	1½	17¾	Leased.	
" ..	" Lt. House Channel	1883	.....	¼			
" ..	Mabou—Port Hawkesbury	1903	41¾	.....	73¾	7	
" ..	Port Hawkesbury—St. Peters	1903	32	.....			
" ..	St. Peters—Main-a Dieu	1904	84¼	.....			
" ..	Main-a-Dieu—Scatari	1902-09	1	3½	131½	14	
" ..	On Scatari Island	1904	7¼	.....			
" ..	Gabarous—North Sydney	1904	35½	.....			
" ..	Little Bras d'Or—Kempt Head	1905	36	.....	36	6	13,099
" ..	North Sydney—Eskasoni	1905	37	.....	37		
" ..	Castle Bay—Grand Narrows	1908	16	.....	16	10	
" ..	Grand Narrows—Shenacadie	1910	8	.....	8		
" ..	Leitches Creek—Steeles Crossing (loop).	1910	28	.....	28		
" ..	Baddeck—Little Narrows	1910	19½		19½		
" ..	North Sydney—Little Bras d'Or (second wire)	1906	6	.....	6		
" ..	Grand River—Enon	1907	19½	.....	19½	2	
" ..	Enon—Gabarus	1909	31	.....	31	2	
" ..	Strathlorne—Wycocomagh	1909	32¼	.....	32¼	4	
	Port Hood, Island Branch:						
	(Length of construction in loop.)						
" ..	On mainland at Port Hood	1907	½	.....			
" ..	Port Hood—Smiths Island	1907	.....	2			
" ..	On Smiths or Inner Island	1907	4	.....	13½	4	
" ..	Smiths Island to Henry Island	1907	.....	3			
" ..	On Henry or Outer Island	1907	4	.....			
New Brunswick.	Chatham—Escuminac	1885	42¼	.....	42¼	6	905
	Bay of Fundy System:						
" ..	Eastport—Campobello	1880	.....	1¾			
" ..	On mainland Eastport	1880	½	.....			
" ..	On Campobello Island	1880	7½	.....			
" ..	Campobello-Grand Manan	1880	.....	7¼			
" ..	On Grand Manan Island	1880	25¼	.....	44¼	12	1,667
" ..	Grand Harbour—Cheneys Island	1890	.....	½			
" ..	On Cheneys Island	1890	¾	.....			
" ..	Cheneys Island—Whitehead Island	1890	.....	¾			
" ..	Partridge Island—Fort Dufferin	1900	.....	¾	¾		
	Carried forward	.....	855¼	42¾	898	111	15,691

GOVERNMENT TELEGRAPH SERVICE—*Con.*

Location of Lines.	Points connected.	Year.	Length of Lines. Land Lines.	Cables.	Total.	Number of Offices.	Messages Sent.
			Miles Wire	Kt's.			
	Brought forward	.....	855¼	42¾	898	111	15,671
	Gannet Rock Branch:						
New Brunswick.	Seal Cove—Big Wood Island	1910	¼	1½			
"	On Big Wood Island	1910	1½				
"	Big Wood Id.—Little Wood Id	1910	.....	½	11¼	3	
"	On Little Wood Island	1910	¼				
"	Little Wood Island—Gannet Rock	1910	.....	7¼			
	Magdalen Island System:						
Quebec	Meat Cove, C.B.—Magdalen Islands	1880	.....	55			
"	On Magdalen Island	1881-02	83½	½			
"	Grosse Isle—Bryon Island	1902	.....	11			
"	On Bryon Island to Dingwalls	1902	1	.....			
"	On Byron Dingwalls to Lt. House	1909	5	.....	184¾	18	2,536
"	House Harbour—Pointe Basse (loop wire	1902	8	.....			
"	Pointe Basse—South Beach (loop wire)	1905	6	.....			
"	Grindstone—Barachois (loop wire)	1909	6	.....			
"	Amherst Island—Entry Island	1910	2	6¾			
	Anticosti System:						
Quebec	Gaspe—L'Anse à Fougere	1881	28	.....			
"	L'Anse à Fougere—Anticosti	1881	.....	44¼	316½	9	2,374
"	On Anticosti Island	1881-90	223¼	.....			
"	Anticosti—Long Point, Mingan	1890	.....	21			
"	Bay St. Paul—Chicoutimi	1881-04	98	.....	98	6	
"	St. Alexis—St. Catherines Bay	1904	78	.....	78	5	
"	Murray Bay—St. Agnes	1904	14½	.....	14½	2	
"	Bay St. Paul—Petite River	1904	13	.....	13	1	
"	Chicoutimi—St. Charles	1903	37	.....			
"	St. Anne—Lac Claire	1903	15	.....	61	10	
"	St. Anne—St. Fulgence	1903	9	.....			
"	St. Fulgence—Sacre Cœur	1905	57½	.....	57½	4	
"	Murray Bay-St.Catherines Bay(2 wire)	1904	44¾	.....	44¾	.....	
"	St. Alexis—Chicoutimi (2nd wire)	1905	14½	.....	14½	.....	
"	St. Charles—St. Henri de Taillon	1907	24½	.....	24½	4	
"	St. Henri de Taillon—Peribonka	1908	17	.....	17	2	35,842
"	Bay St. Paul—St. Placide	1908	8½	.....	8½	1	
	North Shore Line:						
"	Murray Bay—Chateau Bay (Tadousac)	1881-01	1,028½	.....			
"	Across Saguenay River at Tadousac	1883	.....	1¼	1,030¾	69	
"	" " "	1909	.....	1			
"	Chateau Bay—Belle Isle*	1901	.....	.....	.....	.....	
"	Bersimis—Godbout	1904-05	104	.....	104	.....	
"	St. Simeon to Cap Salmon Lt. (loop wire)	1909	4	.....	4	1	
"	Harrington—Harrington Island	1909	1¼	3¼	4½	1	
	Carried forward	.....	2,789	196	2,985	247	56,423

*This cable (Chateau-Bay—Belle Isle) 22¼ knots, was withdrawn in 1909.

GOVERNMENT TELEGRAPH SERVICE—*Con.*

Location of Lines.	Points connected.	Year.	Length of Lines. Land Lines.	Cables.	Total.	Number of Offices.	Messages Sent.
			Miles Wire	Kt's.			
	Brought forward		2,789	196	2,985	247	56,423
	Quarantine System:						
Quebec	Quebec—L'Ange Gardien	1885	13	.....			
"	L'Ange Gardien—Orleans Island	1885	.....	$\frac{3}{4}$			
"	" (3 lengths)	1906–09	.....	$2\frac{1}{4}$			
"	On Orleans Island	1885	$29\frac{1}{4}$	.....			
"	Orleans Island—Isle Reaux	1889	.....	2			
"	" " (2nd cable)	1910	.....	$2\frac{1}{4}$			
"	On Isle Reaux	1889	$2\frac{1}{2}$	.....	$80\frac{1}{4}$	11	1,945
"	Isle Reaux—Grosse-Isle	1889	.....	2			
"	" " (2nd cable)	1910	.....	2			
"	On Grosse Isle (all told)	1885–94	$3\frac{1}{4}$	.....			
"	St. Jean—St. Famille (loop)	1904	11	.....			
"	St. Francois—St. Francois Nord (looped wire)	.....	10	.....			
"	St. Francois—Baie St. Paul*	1906	.....	.....	.....	.....	.....
"	Crane Island to Montmagny	1905–09	.....	5	5		
"	On Crane Island	1905	3	.....	3	5	
"	Crane Island to Grosse Isle	1907	.....	5	5		
"	Beauport—Laval	1909	15	.....	15	4	
"	Orleans Island Telephone System	1910	68	.....	68	7	
"	Kippawa Dam—Ville Marie	1910	$33\frac{1}{2}$	.....	$33\frac{1}{2}$	3	
	Pelee Island System:						
Ontario	Leamington—Point-Pelee	1889	12	.....			
"	Leamington Dock—Pelee Island	1901	.....	$17\frac{1}{4}$	$45\frac{3}{4}$	18	1,304
"	On Pelee Island	1889–00	$16\frac{1}{2}$	.....			
Northwest	Qu'Appelle—Edmonton	1883	625	.....	625	17	
"	Moosejaw—Wood Mountain	1885	$90\frac{1}{2}$	.....	$90\frac{1}{2}$	6	
=	Wood Mountain—Willow Bunch	1904	$39\frac{1}{2}$	.....	$39\frac{1}{2}$		
"	Edmonton—Indian Ag. & Stoney Plain	1904	24	.....	24	5	
"	Edmonton—Athabaska Ldg	1904	98	.....	98	2	
"	Duck Lake—Batoche	1902	9	.....			
"	Duck Lake—Indian Agency	1902	$3\frac{1}{2}$	.....	$12\frac{1}{2}$	3	24,460
"	Edmonton—St. Albert	1887	9	.....			
"	St. Albert—Qui Barre and Alexandria	1902	27	.....	36	4	
"	Lloydminster (loop) near Pitt	1904–09	58	.....	58	1	
"	Victoria—Andrew and Whitford	1904–05	$11\frac{1}{2}$	.....	$11\frac{1}{2}$	2	
"	Qu'Appelle—Lipton (loop)	1906	11	.....	11	1	
"	Saddle Lake—Industrial School	1900	$6\frac{1}{2}$	.....	$6\frac{1}{2}$	1	
"	Kamsac—Indian Agency	1907	$6\frac{1}{2}$	.....			
"	Kamsac Indian Agency—Keys Reserve	1910	17	.....	$23\frac{1}{2}$	6	
"	Limerick to Gravelburg (loop)	1910	42	.....	42	1	
"	Fort Qu'Appelle to File Hills	1908	28	.....	28	4	
"	Athabaska Lndg. towards Peace River	1909	70	.....			
"	" completion to Peace River	1910	199	.....	269	5	
British Columbia	Victoria—Cape Beale	1891	118	.....	118	12	3,400
"	Nanaimo—Comox	1893	81	.....	81		
"	Parksville—Alberni	1895	$29\frac{1}{2}$	.....	$29\frac{1}{2}$	18	19,994
"	Alberni—Cape Beale	1899	57	.....	57	2	565
"	" Clayoquot	1902	$96\frac{3}{4}$	.....	$96\frac{3}{4}$	12	3,402
"	" Sechart Branch	1907	9	.....	9		
	Carried forward		$4,772\frac{1}{4}$	$234\frac{1}{2}$	$5,006\frac{3}{4}$	397	111,493

*This cable (St. Francois—Bay St. Paul) 30 knots, has been withdrawn (May, 1910).

GOVERNMENT TELEGRAPH SERVICE—*Con.*

Location of Lines.	Points connected.	Year.	Length of Lines. Land Lines.	Cables.	Total.	Number of Offices.	Messages Sent.
			Miles Wire.	Kt's.			
	Broughtf forward	.....	4,772¼	234½	5,006¾	397	111,493
British Columbia	Kamloops—Lower Nicola	1899	67	.....	67		
" ..	Lower Nicola—Penticton	1905	168	.....	168	39	
" ..	Vernon—Kilowna	1905	35	.....	35		45,526
" ..	Kilowna—Penticton	1906	45	1½	46½	.....	
" ..	Vernon—Lumby	1907	18	.....	18	2	
" ..	Golden—Windermere	1901-02	92	.....	92	12	1,944
" ..	Duncan Station—Salt Spring Island	1902-04	24	.....	24	5	
" ..	Salt Spring Island—North Pender Island	1907	16	4½	20½	5	
" ..	North Pender—South Pender	1908	7	.....	7		1,949
" ..	Pender Island—Mayne Island	1908	11	1	12	5	
" ..	Mayne Island—Galino Island	1908	4	1	5	2	
" ..	Nanaimo—Gabriola Island	1908	18	1	19	6	528
" ..	Courtney—Campbell River	1908	40	.....	40	3	†
" ..	Union—Denman and Hornby Islands	1907	14	2	16	6	301
" ..	Victoria—Metchosin	1908	14	.....	14	1	‡
" ..	Kamloops—Louis Creek	1908	36	.....			
" ..	Louis Creek—Little Fort (Aitkens)	1910	31	.....	67	8	*s*
" ..	Kamloops—Grand Prairie—Vernon	1910	84	.....	84	6	*s*
	Sidney Island Line:						
" ..	Sidney to Cable landing	1910	1	.....			
" ..	Cable to Sidney Island	1910	.....	2½	5	2	595
" ..	On Sidney Island	1910	1½	.....			
	Texada Island Branch:						
" ..	Campbell River—Quattica Cove	1910	1¼	.....			
" ..	Quattica Cove—Valdes Island	1910	.....	2			
" ..	On Valdes Island	1910	7¼	.....			
" ..	Valdes—Mary Island	1910	.....	4			
" ..	On Mary Island	1910	2	.....	47½	9	†
" ..	Mary Island—Cortez Island	1910	.....	½			
" ..	On Cortez Island	1910	7½	.....			
" ..	Cortez Island—Sarah Point	1910	.....	2			
" ..	Sarah Point—Powell River	1910	21	.....			
Yukon	Ashcroft—Dawson and Boundary	1899-01	1,845				
"	Hazelton—Port Simpson and Aberdeen	1901-02	202½			88	
"	Tagish—Cariboo Crossing	1901	18	....	2,252½		
"	150 mile Station—Quesnelle Forks	1902	64				
"	Ashcroft—Lillooet	1896	62				87,579
"	Quesnelle—Barkerville	1887	61				
"	Ashcroft—Quesnelle (local wire)	1878-87	215	.....	215	.....	
"	Hootalinqua—Livingstone Creek	1907	35	.....	35	2	
"	Aberdeen—Prince Rupert	1907	40	.....	40	5	
"	Kitsumkalum towards Stewart	1910	70	.....	70	.....	
	Total	.....	8,150¼	256½	8,406¾	603	249,915

*For convenience in totalling, the knots of cable are regarded as statute miles.
†Count of messages included with Nanaimo—Comox line.
‡ " " " Victoria—Cape Beale line.
s " " " Kamloops—Lower Nicola, etc.

REPORT ON THE GOVERNMENT TELEGRAPH SERVICE, 1910-11.

EXPLANATORY NOTES.

The tabular statement prefacing this report shows the total mileage, &c., of the telegraph lines operated by the government. Lines that have been subsidized or constructed and transferred by the government for operation by private companies are not included in this list.

The matter in the following pages comprises a statement of specific actions taken in the course of the year; and in pursuance of the plan followed last year the particulars are given in separate reports, hereto subjoined, from the district superintendents, and will be found indicated under the several division headings. In any case where no particular reference is made to a line found in the above-mentioned list, the understanding intended to be conveyed is that the line has been satisfactorily operated throughout the year, without any change of conditions since last made mention of in the annual report.

NEWFOUNDLAND.

The line from Port au Basque to Cape Ray continued to be operated as heretofore under an arrangement with the Anglo-American Telegraph Company.

MARITIME PROVINCES.

Cape Breton Construction.—In the course of the season, 1910, there were three new extensions made as hereunder, in preparation for the opening of offices in the districts to be served.

Grand Narrows to Christmas Island and Shenacadie, (8 miles.)—This is an extension of the North Sydney-Eskasoni line and is intended to be carried to Lower Shenacadie, a distance of 15 miles from the Grand Narrows. The work of construction, as far as performed, was done under the foremanship of Mr. Joseph Logue, General Repairer for the district in which it is located. Poles of spruce and fir obtained along the route and No. 6 galvanized iron wire and white porcelain insulators have been used in the building of the line.

Leitches Creek-Steels Crossing Loop, (14 miles).—This is a loop off the North Sydney-Eskasoni line. The construction was carried out in the same way as that of the Shenacadie extension above mentioned.

Baddeck-Nyanza-Little Narrows, (19½ miles).—This is a branch from the main line looped into Baddeck from the North Sydney-Meat Cove circuit. It was built in two sections; from Baddeck to Baddeck Village near Nyanza 6¼ miles under the superintendence of Mr. M. C. McLean of Baddeck, and from Baddeck Bridge to Ferry Landing (Little Narrows) 13¼ miles under the superintendence of Mr. M. Morrison of Bucklow. Native wood, spruce and fir, was used for poles and No. 6 galvanized iron wire and white porcelain insulators were used in the construction.

MAINTENANCE.

Port Hood Islands Cables.—One side of the Port Hood Islands loop line became interrupted on the 1st April and business for the Islands was relayed at Port Hood until the 12th August when a repair to the cable, which had become interrupted between Smith Island and Henry Island, was repaired by the ss. *Tyrian.*

Big Bras d'Or Cable.—Some further trouble occurred with this short stretch on the 8th September, 1910. It was restored to good conditon by the ss. *Tyrian* on the 20th of the same month; temporary repairs having been locally effected in the meantime.

New offices, changes, &c., on the Cape Breton lines. A record of new offices opened, &c., will be found in the appended report (No. 1) from the District Superintendent, Mr. D. C. Dawson.

Coffin Island, N.S.—As an aid to the local telephone company operating in the neighbourhood, there was contributed by the Department and laid by the ss. *Tyrian* on the 21st July, 1910, a short stretch of ·80-knot deep sea type of submarine cable between Coffin Island and the main shore near New Liverpool, N.S.

BAY OF FUNDY.

Construction—Seal Cove, Grand Manan to Gannet Rock.—In Ocaober, 1910, there was constructed for the Department of Marine and Fisheries in connection with the life saving station, a telephone line extending between the above points and crossing over Big and Little Wood Islands. The line comprises, as shown in the list prefacing this report, 2 miles of land line and 9¼ knots of submarine cable. The latter was laid by the ss. *Tyrian* and some of the ship's hands; with local assistance, under the superintendence of Mr. A. B. McDonald erected the land line sections; a supply of cedar poles having been obtained from St. John, N.B., for the purpose, and telephones were installed at Gannet Rock, Little and Big Wood Islands and Seal Cove where connection is made with the Grand Manan Telegraph system.

Partridge Island Cables.—The ss. *Tyrian,* in October, 1910, renewed the ¾-knot stretch that had been in use between Partridge Island and Fort Dufferin, for several years, and when interrupted was found to be deteriorated beyond repair. At the same time, a second stretch was laid down for the Department of Marine and Fisheries in connection with the wireless stations of the Naval Service. The first-mentioned section is used by the Department of Agriculture in connection with the Quarantine service.

Maintenance—Grand Manan-Campobello Cable.—A leak developed in this section on the 4th November, 1910, and the ss. *Tyrian* being in the neighbourhood turned attention to it and removed the trouble on the 9th of the same month.

Deer Island Cables.—Early in November, 1910, some further trouble occurred in one of these short stretches which were dealt with in the spring of 1909, as mentioned in last year's report. This time, a break was found in the stretch between Deer Island and Campobello. It was repaired and communication restored by the ss. *Tyrian* on the 10th of the same month.

A report (No. 2) from the District Superintendent, Mrs. C. C. Seely covering the operation of the Bay of Fundy system is hereto appended.

QUEBEC.

MAGDALEN ISLANDS.

Construction.

Amherst Island, Entry Island (8¾ miles).—In July 1910, the ss. *Tyrian* laid a stretch of 6¾ knots of cable between Amherst and Entry Islands and a land line section 2 miles in length was afterwards built on Entry Island by the local superinten-

dent for a telephone connection with the telegraph office at Amherst. Telephones were installed on October 21, when the *Tyrian* next visited the locality, and this line has since been in satisfactory operation.

Kippewa Dam Telephone Line (33½ miles).—In the winter of 1910-11, a single wire (No. 6 galvanized iron) telephone line was constructed under the superintendence of Mr. J. E. Gobeil of the Headquarters Staff from the Kippewa Dam through the woods 14½ miles to Denis, thence by the existing roadway 6 miles to Fabre and a further 13 miles to Ville Marie where connection was made with the North Temiskaming Telephone Company's system.

The offices on this line are being operated on commission (25 per cent of the government tolls) and are respectively in charge of the engineer at the dam, Mr. J. Valiquet at Fabre and Mr. J. Samson at Ville Marie.

The tariff charged is the same as on the lines of the connecting company, viz., 25 cents for three minutes conversation and five cents for every additional minute.

Arrangements for the up-keep of this line consists in the engagement of Mr. Damas Samson of Fabre, for the care of the portion between Ville Marie and Denis, the rest of the length being in care of the departmental officers at the dam.

Maintenance.

Meat Cove, Old Harry Cable.—As mentioned in last year's report, a repair of this section was made by the ss.*Tyrian,* on April 15, 1910.

New Office.—On October 19, 1910, an office was opened at Aurigny, on the main line between Amherst and Amherst Lighthouse in charge of Mr. Leo P. Gaudet as agent operator.

Operation of the Magdalen Islands Lines.—The appended report (No. 3) from the district superintendent, Mr. A. LeBourdais, covers the local conditions and operation of the land line sections throughout the year.

Anticosti Island.—The Gaspé-Anticosti cable that had been repaired at the southwest Point Landing on May 29, 1909, apparently became affected again on April 7, 1910. The ss. *Tyrian* visited the locality for investigation and the trouble was found in the wiring ashore, and was cleared out on the 23rd of the same month. Communication was had with the mainland by way of the Long Point-Mechastic Bay cable in the meantime. The appended report (No. 4) from the district superintendent, Mr. A. Malouin, covers the operation of the Anticosti system throughout the year.

North Shore St. Lawrence and Chicoutimi.—The working conditions as set forth in last year's report, have continued satisfactory and undisturbed. Some general repairs, necessary to the upkeep of the telegraph line in several sections of the Chicoutimi district and on the North Shore St. Lawrence, west of Bersimis, will be found dealt with in the annexed report (No. 5) from the district superintendent, Mr. J. C. Tache.

North Shore St. Lawrence, east of Bersimis.—Along the north shore, east of Bersimis to the Straits of Belle Isle, the line has been maintained in satisfactory order. Repair gangs under the foremanship of the regular linemen in the several sections performed as has been customary each year, whatever work in the way of general overhauling and clearance of the line and the renewal of bridges, shelter huts, &c., that was called for in the several sections.

Changes and appointments, where any have been made, will be found noted in the tabular statement of offices, agencies, &c., in the appendix.

The accompanying report (No. 5a) from the district superintendent, Mr. E. H. Tetu, at Long Point of Mingan, contains an account of the operations of the line during the year.

Bay St. Paul-St. Francois Cable. (30 knots).—This stretch, which has been out of use for sometime, as explained in the report for 1907-8, was picked up by the ss. *Tyrian* in May, 1910. 28·31 knots of the length were recovered that has since been utilized elsewhere.

QUARANTINE TELEGRAPH SYSTEM.

In addition to the cable repairs, in the spring of 1910, that were made by the ss. *Tyrian* as mentioned in last year's report, there was laid on June 18, a second stretch of cable between St. François and Isle aux Reaux, 2·24 knots, and on June 23, a second stretch between Isle aux Reaux and Grosse Isle, 1·88 knots, these being intended either for reserve in event of interruption or to be available for a contemplated extension of the Orleans Island telephone service.

Orleans Island Telephone System.—In the autumn of 1910, there was established on Orleans Island a trunk line telephone service embracing all of the parishes, and effected by means of a metallic circuit (2 copper wires) being strung upon the pole line of the Quarantine Telegraph. This work was done under the supervision of Mr. M. W. Crean, of the headquarters staff. An arrangement was entered into with the Bell Telephone Company whereby business is exchanged with Quebec at a charge of 15 cents for 3 minutes conversation and proportionately for each additional 3 minutes. Two-thirds of the tolls going to the company and one-third to the government line, and for points on the company's lines elsewhere than Quebec, the company's regular rates plus 5 cents for the government line. The local rate between offices on Orleans Island is 5 cents for 3 minutes conversation and proportionate charge for each additional 3 minutes.

ONTARIO.

PELEE ISLAND TELEPHONE SYSTEM.

An interruption of the cable to the mainland was mentioned in last year's report as having been cleared out by the local superintendent on May 21, 1910. This cable was again interrupted on July 19 following, and was repaired on August 2, and again on September 3, repaired 26th same month. These recurring troubles were occasioned by vessels fouling the cable with their anchors during storms.

The appended report (No. 7) from Mr. J. McR. Selkirk, District Superintendent at Leamington, will be found to contain, barring the period of interruption, a satisfactory showing as to the maintenance and operation of the system during the year.

Several new stations have been connected on the Island section of the system, as shown in the tabular statement in the appendix to this report.

NORTHWEST, BRITISH COLUMBIA AND THE YUKON.

The separate reports (Nos. 8-12), appended hereto from the respective district superintendents, will be found to convey an account of what has been done in these divisions of the service in the course of the fiscal year. The whole, as was the case for the previous twelve months, affords a very satisfactory showing.

NOTE. In South British Columbia, the Okanagan Valley Telephone System, that was formerly under the Superintendence of Mr. C. S. Stevens, has latterly, since the 1st. June, 1911, been in charge of Mr. L. A. Palmer.

TELEGRAPH SERVICE GENERALLY.

Cableship Tyrian.—As mentioned elsewhere, the ss. *Tyrian* in the course of the season of 1910, made repairs to Magdalen Islands main cable, the Gaspe-Anticosti cable at South West Point, the Crane Island-Montmagny and Quarantine cables in the River St. Lawrence and Grand Manan-Campobello cable in the Bay of Fundy; laid additional cables for the Grosse Isle-Quarantine telegraph system and for connections with Coffin Island, N.S. and Gannet Rock in the Bay of Fundy, and, incidentally to the work on the River St. Lawrence, picked up the disused cable that extended from Orleans Island to Bay St. Paul, Q.

A statement of the vessels operations through the period of her active service, in the course of the year, is given in the accompanying report (No. 13) from Mr. A. B. McDonald, General Inspector of the Maritime Province lines, who accompanied the ship as usual in the capacity of electrician.

Extent of the Government Lines, &c.—In consequence of the Government telegraphs being comprised nearly altogether of single wire lines it has been customary to take the mileage of the wire as representing the extent of the service as a whole. In the list prefacing this report the present total length of the land lines is accordingly set down as 8,150 miles. Of this, however, there is about 450 miles all told of 2 wire lines made up of loops and local circuits including the Ashcroft-Barkerville way wire. The pole lines of the service covers 7,700 miles of ground. In the preparation of the lists hereafter a distinction will be made between the pole line and wire mileages for convenience of comparison with the other telegraph systems of the Dominion. As regards the number of offices established, the total is now shown to be 603 inclusive of those that are operated as trunk line telephone stations, of which latter there are a considerable number in British Columbia. The majority of the telegraph offices are operated on salary or with fixed allowances as guarantee of commission, whereas the majority of the trunk line telephone offices are operated on straight commission without any fixed allowances.

The appended report (No. 13) from Mr. A. B. McDonald, electrician, conveys a statement of the lengths of the cable handled in the course of the ship's operations.

Telegraph Systems of the Dominion.—As a matter of general interest, pursuant to the statement submitted last year, the latest figures to hand showing the extent of telegraph lines in operation in the Dominion are given hereunder:—

Canada.	Length of Lines in Miles.				Length of Conductors in Miles.				
	Aerial.	Underground.	Submarine.	Total.	Aerial.	Underground.	Submarine.	Total.	No. of offices
1910.	Pole line.								
Great North Western Telegraph Co.	11,386	.....	.....	11,386	47,483	.....	.....	47,483	1,227
Canadian Pacific Telegraph	12,004	3	.....	12,007	68,721	90	.....	68,811	1,338
Western Union Telegraph Co.	2,639	32	.....	2,671	11,255	44	.....	11,299	218
Government Telegraph service	7,700	.....	256	7,956	8,150	.....	256	8,406	603

REVENUE AND EXPENDITURE.

The revenue and expenditure for each of the government lines in the several districts hereinbefore mentioned, are given in the following table:—

1910-11.	Expenditure.	Revenue.	Remarks
	$ cts.	$ cts.	
Lower St. Larwence and Maritime Provinces:—			Signal Service messages, Meterological Service messages and reports, and Fisheries bulletins are handled free of tolls.
Anticosti lines	6,969 97	2,770 44	
Gaspe Local	.....	59 06	
Bay of Fundy line	2,043 82	768 47	
Cape Breton lines	17,666 06	3,019 37	
Cape Ray *Subsidy*	250 00	.....	
Escuminac line	600 40	218 18	
Isle aux Coudres *Subsidy*	200 00	.....	
Isle St. Paul	23 68	.....	
Magdalen Islands	4,270 09	1,050 90	
Laval-Beauport Telephone line	.....	31 08	
North Shore East of Bersimis	21,669 49	5,365 95	
North Shore West of Bersimis	14,198 70	2,321 92	
Prince Edward Island and mainland	6,946 66	.....	
Quarantine System	3,933 53	471 83	
Cable ship *Tyrian*			
Maintenance and repairs	55,994 93	.....	
Generally			
Gulf and Maritime Provinces	7,082 40	.....	
Ontario:—			
Pelee Island Telephone line	3,395 16	192 20	
Northwest Territories lines	42,422 11	8,157 05	
British Columbia.:—			
Alberni-Cape Beale	1,308 50	188 64	
Alberni-Clayoquot	3,876 76	1,327 44	
Campbell River-Texada Island	417 33	.....	
Denman-Hornby Islands line	32 83	119 92	
Golden-Windermere line	2,246 42	1,588 45	
Nanaimo-Comox line	6,381 35	5,074 47	
Nanaimo-Gabriola line	790 04	146 30	
Sidney-Sidney Island line	13,69	110 09	
Vancouver-Salt Spring Pender Island	875 30	707 36	
Victoria-Cape Beale line	9,694 19	1,471 75	
Kamloops-Okanagan	14,655 80	15,358 30	
British Columbia service generally	1,855 85	.....	
Yukon:—			
Ashcroft-Dawson	199,999 18	119,065 98	
Telegraph service generally	3,155 80	.....	
Total	432,970 04	169,585 15	

Departmental Telephone Service.—Up to date of this report (April 1, 1911), the telephone connections with the central office of the Bell Telephone Company at Ottawa, listed as chargeable to the special appropriation, numbered 489, the annual charge for which amounts to $20,523.25. The connections are distributed amongst the several departments, as hereunder:—

Department.	Offices.	Residences.	Annual Charge.
			$ cts.
Agriculture	12	6	728 00
Auditor General	10	1	495 00
Census	1	1	100 00
Civil Service Commission	3	4	250 00
Customs Department	9	3	480 00
Dominion Police	10	3	523 00
Exchequer Court	1	1	105 00
Finance Department	8	5	540 00
Governor General (including Priv. System)	9	3	554 75
House of Commons	15	3	772 50
Indian Affairs	9	2	435 00
Inland Revenue	9	4	525 00
Interior Department	54	9	2,640 00
Justice Department	9	11	794 00
Labour Department	4	4	345 00
Mounted Police	3	1	145 00
Marine and Fisheries and Naval Department	29	15	1,794 00
Militia and Defence	35	14	2,190 00
Mines Department (inc. Geological Survey)	10	2	478 00
Parliamentary Library	1	2	120 00
Post Office Department	10	6	633 00
Privy Council	6	6	515 00
Public Works Department	41	16	2,543 00
Railways and Canals	12	10	870 00
Secretary of State	6	6	506 00
Stationery and Printing	13	4	720 00
Trade and Commerce	6	4	414 00
The Senate	7	1	308 00
	342	147	20,523 25

APPENDED TABLES.

The usual tabular statements of the lines and offices, staff, &c., of the telegraph service, following hereupon, will be found to contain whatever additions or changes have been made up to March 31, 1911.

D. H. KEELEY,
General Superintendent.

GOVERNMENT TELEGRAPH SERVICE.

NEWFOUNDLAND TELEGRAPH SERVICE.

No	Stations.	Intermediate Distance.	Agents and Operators.	Memo.
1	Port au Basque.....	0	50 00 or commission...	N.B.—The commission is 25 per cent upon all business to and from the office; said commission guaranteed not to be less than at the rate of $50 per annum.
2	Cape Ray Lighthouse.....	14	50 00 "	
	Totals.....	14	100 00	

N.B.—The above short line is constructed in connection with the Signal Service, and connects at Port au Basque with the land line system of the Anglo-American Telegraph Company.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

ANTICOSTI TELEGRAPH SYSTEM.

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ cts.		
1	Fox Bay	0	.....	.....	.....	Closed Aug. 5, 1909.
2	Heath Point	2	C. Hubert	200 00 or commission	Aug. 1, 1900	For local agency. Cable removed.
3	South Point Lighthouse	32½	E. Leprise	100 00 "	July 1, 1903	Increased to $100 June 1, 1908.
4	Shallop Creek	17½	B. Bradley	360 00 per annum	July 7, 1881	Increased to $360 June 1, 1908.
5	Salt Lake	52½	Jos. Bourget, gen. reprer	420 00 "	July 17, 1906	Plus $1 per day when on duty as general repairer.
			Mrs. Bourget, operator	100 00 "	July 17, 1906	Increased to $100 June 1, 1908.
6	Southwest Pt. Lighthouse	15	A. Lemieux	480 00 "	July 1, 1901	Increased to $480 June 1, 1908.
			L. Lemieux	180 00 "	July 1, 1908	
	Jupiter River	7	.....	50 00 or commission		
	Otter River	17½	.....	50 00 "		
	Beesie River	22	.....	50 00 "		
	Cape Eagle (Ellis Bay)	10	Jas. Duguay	100 00 "	June 20, 1906	Increased to $100 June 1, 1908.
7	West Point Lighthouse	9	A. Malouin, dist. supt.	404 00 per annum	Aug. 1, 1900	Increased to $404 June 1, 1908.
			A. Malouin, operator	100 00 "	Aug. 10, 1881	
			Loz. Malouin, sub. opr.	480 00 "		
8	English Bay	3	F. Cabot	360 00 "	July 1, 1882	Increased to $360 June 1, 1908.
			H. Malouin, gen. repaire	420 00 "	Sept. 10, 1909	From Mechastic Bay to South West Point.
	Mechastic Bay (cable landing).	14½				
	Totals	223½		3,854 00		

Southwest Point connects with L'Anse à Fougère, Gaspé, by cable 44¼ knots; and from Mechastic Bay connection is made with Long Point of Mingan by cable 21 knots.

0	L'Anse à Fougère	.....	Thos. Dupuis	17 00	.....	Special allowance for the cable terminus. A testing station only.*
1	Gaspé Basin	28	J. J. Annett	540 00	Oct. 16, 1881	Transfer office. Connection with G.N.W. telegraph system. .The salary was $480 per year previous to January 1, 1908.
		28		557 00		

MAGDALEN ISLANDS SYSTEM.

1	Amherst	0	Miss J. Shea	50 00 or commission	Oct. 1, 1882	The Commission is 25 per cent on all business to and from the office in each instance; said commission guaranteed to be not less than at the rate of $50 per annum.
	To loop	4½				
2	Aurigny (on loop)	2¼		50 00 "		
3	Amherst Lighthouse	2				
	To main line	4¼	Wm. Reneau, repairer	120 00 "	June 9, 1908	
	To cable	2¼	Wm. Cormier	50 00 "	June 11, 1881	
	Cable stretch	6½				
4	Etang du Nord village	1½	J. G. Binet, gen. rep.	500 00 "	Dec. 1, 1900	Plus $1 per day when absent on duty.
			Mrs. A. Binet	100 00 "	Dec. 1, 1881	
5	Etang du Nord Lighthouse (on loop)	1½	N. Arsenault	50 00 "	Sept. 1, 1901	Two wire loop line.
	To main line	1½				
6	Grindstone	7	W. Leslie	Commission 25 p.c.	May 20, 1897	
7	Grindstone West	1	A. LeBourdais, dis. supt.	900 00 "	Aug. 17, 1880	Plus $1 per day when absent on duty. The salary was $720 per annum prior to July 1, 1908.
	To cable (on loop)	¼	Mrs. LeBourdais, oper.	50 00 "	Sept. 15, 1893	
	Cable stretch (on loop)	½	J. J. LeBourdais	444 00 "	May 25, 1904	Temporary assistant.
8	House Harbour (on loop)	2¼	Camille Delaney	50 00 or commission	June 1, 1888	
9	Pointe Basse (on loop)	3	H. Arseneau	50 00 "	Aug. 1, 1902	
10	South Beach (on loop)	3				
	To main line (wire)	8½	F. Chevrier	50 00 "	July 1, 1905	
	To main cable	½				
	To loop	2¼				
11	Cap Vert (on loop)	¾	Mrs. G. Cyr	50 00 "	June 22, 1909	
	To main line	¾				
12	Wolfe Island	12				
13	Grosse Isle	11¼	N. Clarke	360 00 or commission	June 1, 1888	For repeating station. Prior to Dec. 1, 1902, the allowance was $200 and commission for local agency
			J. Quinn	180 00 "	Dec. 1, 1902	
14	Old Harry	9	L. C. Clarke	500 00 "	Mar. 8, 1907	
15	Grand Entry	5¾	Mrs. F. Atkins	50 00 "	Feb. 18, 1882	
	CABLE CONNECTIONS.					
	Grosse Isle	0				
	Old Harry (wire only)	9	(Cable landing)			
	Cable to Meat Cove, Cape Breton	55	(See Meat Cove Line)			
	Grosse Isle	0				
	Cable to Bryon Island	11				
16	Bryon Island	1	W. Dingwall	150 00 or commission	Jan. 1, 1903	Two wire loop line from terminal hut for Grosse Isle cable.
17	Bryon Lighthouse	3½	P. Chevrier	50 00 "		
	Amherst	0				
	Cable to Entry Island	6¾				To be completed in season of 1910.
18	Entry Island Lighthouse	2				
		181¾				

Total mileage, Magdalen Islands system: Land wires, 101½; Cables, 80¼; Pole Line, 83¾.

GOVERNMENT TELEGRAPH

NORTH SYDNEY—

No.	Offices.	Intermediate Distances. Wire.	Embracing. Pole line.	Cables.	Agents and Operators.
		Miles.	Miles.	Miles.	
1	Meat Cove*	0	.....	.....	.....
	To loop	7	7	.....	Mrs. H. L. McEachern.
2	Bay St. Lawrence (loopwire)	½	.....	.....	V. Therriault. Mrs. V. Therriault, Asst.
	Money Point (Branch line)	8	8	.....	See accompanying table.
3	Aspy Bay	4½	4½	.....	R. G. Zwicker.
4	Cape North Island	5	5	.....	N. A. McDaniel.
	To loop	1	1	.....	
5	Dingwall (loopwire)	5½	.....	.....	Joe O'Brien.
	To loop	10	10	.....	
6	Neils Harbour (loopwire)	2½	.....	.....	M. McLeod.
7	Ingonish	9	9	.....	Mrs. S. S. Burke.
8	South Ingonish	10½	10½	.....	Mrs. M. C. Williams.
9	Ingonish Ferry (¼ mile cable included.	2¼	2	¼	Mrs. M. A. McKinnon.
10	Wreck Cove	9	9	.....	Miss Mary Morrison.
11	French River	5	5	.....	John McDonald.
12	Breton Cove	2	2	.....	D. B. McLeod.
13	Indian Brook	7	7	.....	Sadie McDonald.
	To loop	2	2	.....	
14	Murray (on loop)	8	.....	.....	R. B. Matheson.
15	North River Bridge (on loop)	2	.....	.....	D. J. Morrison.
	To main line	10	10	.....	
16	Englishtown (¼ mile cable in-included)	4	3¾	¼	W. Bingham.
17	South Gut (on loop)	5	.....	.....	Rachel Morrison.
18	Baddeck (on loop)	13	.....	.....	L. M. Anderson.
	To Englishtown	18	18	.....	
19	Kellys Cove (New Campbellton)	12	12	.....	Miss A. Morrison.
20	Big Bras d'Or (½ mile cable included)	2½	2	½	D. Livingston.
21	Little Bras d'Or (350 ft.) cable included	8	8	.....	Miss D. E. Grantmyer.

*Meat Cove station connects with the Magdalen Islands system by a cable to Old Harry Head, 55 telephones.

SERVICE—*Continued.*

MEAT COVE SECTION.

Salaries per Annum.	Date of Appointment.	Memo.
$ cts.		
50 00 or commission.*...	Sept. 1, 1907.	*Where not otherwise stated the commission is 25 p.c. of the tolls for the government line on all business to and from the office in each instance; said commission guaranteed to be not less than at the rate of $50 per annum.
720 00	May 1, 1902.	Cable station at Bay St. Lawrence in place of Meat Cove since September 1, 1906
420 00	" 1, 1902.	
.....	.....	
50 00 or commission.....	Jan. 19, 1910	This office was formerly in charge of the late Mr. J. Y. Nichols.
50 00 "	May 13, 1904.	
50 00 "	Nov. 1, 1907.	
50 00 "	April 1, 1887.	
50 00 "	June 1, 1904.	
50 00 "	Jan. 11, 1910	Formerly in charge of Mr. Geo. Brewer resigned.
50 00 "	Oct. 1, 1903.	
50 00 "	May 18, 1908.	
50 00 "	April 1, 1899.	
25 p.c. commission.....	July 19, 1907.	
50 00 or commission.....	Feb. 1, 1907.	
50 00 "	Jan. 29, 1902.	Closed during winter of 1909–10.
50 00 "	Oct. 5, 1909.	
120 00 and commiss and 25 p.c. R. & Cks.....	July 19, 1882.	Switching point for Baddeck line.
50 00 or commission.....	Sept. 1, 1904.	
150 00 and 25 p.c. R. & Cks.....	June 17, 1904..	Salary.—$120 per year previous to this appointment. Former agent Mr. A. Anderson.
.....	.....	This loop to Baddeck starts from and returns to Englishtown.
50 00 or commission.....	Dec. 2, 1909.	
100 00 "	Jan. 1, 1889.	Increase from $50 to $100 since November 1, 1904.
50 00 "	Dec. 1, 1906.	

knots, and Bay St. Lawrence with St. Pauls Island by a cable of 20 knots. The latter is operated with

GOVERNMENT TELEGRAPH

NORTH SYDNEY—

No.	Offices.	Intermediate Distances. Wire.	Embracing. Pole line.	Cables.	Agents and Operators.
		Miles.	Miles.	Miles.	
22	North Sydney	4½	4½	.....	W. U. Tel. Co.
	Instructor	.....	.....	.....	Miss B. Bingham, Englishtown.
	General Inspector	.....	.....	.....	A. B. McDonald, North Sydney.
	District Superintendent for all lines in Cape Breton	.....	.....	.....	D. C. Dawson, St. John, NB
	Total	177¾	140¼	1	
	Repairers Sections.				
	General—				
	Meat Cove—Big Bras d'Or	162¾	125¾	½	S. S. Burke, Ingonish.
	Big Bras d'Or—North Sydney	15	14½	½	Jos. Logue, North Sydney.
	Local—				
	Meat Cove—Money Point and Aspy Bay	20	19½	.....	Angus S. McDonald.
	Aspy Bay—Neils Harbour	24	16	.....	M. McCaskell.
	Neils Harbour—Ingonish Ferry	21¾	21½	¼	Frank Warren.
	Ingonish Ferry—Englishtown	29	28¾	¼	N. M. McLeod.
	Baddeck Loop Line	36	18	.....	D. McAuley.
	Murray Loop Line	20	10	.....	J. Smith.
	Englishtown Big Bras d'Or	14½	14	½	H. Murdoch Campbell.
	Big Bras d'Or — North Sydney	12½	12½	.....	Duncan McRae.
	Total	177¾	140¼	2	
	Money Point Branch.				
1	Bay St. Lawrence	0	.....	.....	V. Therriault.
2	Bay St. Lawrence Beach	1½	1½	.....	J. O'Brien.
3	Cape North Light (Money Point)	5½	5½	.....	Norman McLeod.
4	Cape North Fog Alarm (Money Point)	1	1	.....	Stanley Hackett.
		8	8	.....	(Included in the mileage
	St. Pauls Branch.				
	Bay St. Lawrence	0	.....	.....	
	St. Pauls Island (Inc. 20 Kts. cable.....)	23	3	20	J. Campbell.

SERVICE—*Continued.*

MEAT COVE SECTION—*Continued,*

Salaries per Annum.	Date of Appointment.	Memo.
$ cts.		
Commission only...	.....	The commission is 50 p.c. on local business and 25 p.c. on through messages; and covers supervision of line and office accommodation at North Sydney.
444 00	Nov. 1, 1902.	
1,500 00	May 9, 1905.	Increase to $1,500 from April 1st 1909.
720 00	Jan. 24 1892.	Allowance of $300 per year in addition for office rent, &c. Mr. McDonald accompanies the ss. *Tyrian* as electrician in connection with the cable laying and repairing.
4,974 00		Latest adjustment of allowance dates from July 1, 1907. The C. B. lines are operated in conjunction with the Western Union Telegraph.
540 per annum.....	April 1, 1904.	Increased to $540 March 17th 1911.
(See Eskasoni line, &c.).....	.....	Horsehire allowed in addition since Dec. 1, 1909.
80 00 per annum.....	June 10, 1910.	NOTE.—The rates of allowance are as adjusted in June 1910. In reckoning the repair sections, loops (2 wire lines) are taken as equivalent to 50 p.c. additional pole line. Thus the Murray loop 20 miles of wire and 10 miles of poles is equivalent to 15 miles of pole lines.
90 00 "	Prior to June 1910	
.....		
90 00 "	" "	
100 00 "	" "	
100 00 per annum.....	Prior to June, 1910.....	
60 00 "	" "	
60 00 "	" "	
60 00 "	June 1, 1910.	
1,180 00		
Accommodation.....	Dec. 10, 1907.	This line was established and is being operated by telephone in the interest of the Signal Service.
"	" "	
"	June 1, 1909.	
of the Meat Cove, North Sydney section).		
.....	.....	
50 00 or commission.....	Oct. 1, 1890.	

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

NORTH SYDNEY—MEAT COVE SECTION—*Concluded.*

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ cts.		
	Repairers Sections—Con.					
	Baddeck Loop Line.....	36	D. McAuley.....	100 00 per annum.....	Prior to June, 1910	
	Murray Loop Line.....	20	J. Smith.....	60 00 "	" "	
	Englishtown—Big Bras d'Or.....	14½	Murdoch Campbell.....	60 00 " ..	" "	
	Big Bras d'Or — North Sydney.....	12½	Duncan McRae.....	60 00 " ..	June 1, 1910....	
		177¾				
	Money Point Branch.					
1	Bay St. Lawrence.....	0	V. Therriault.....	Accommodation.....	Dec. 10, 1907....	This line was established and is being operated by telephone in the interest of the Signal Service.
2	Bay St. Lawrence Beach..	1½	J. O'Brien.....	"	Dec. 10, 1907....	
3	Cape North Light (Money Point).....	5½	Norman McLeod.....	"	Dec. 10, 1907....	
4	Cape North Fog Alarm (Money Point).....	1	Stanley Hackett.....	"	June 1, 1909....	
	Total.....	8				

CAPE BRETON: NORTH SYDNEY, BOULARDERIE AND ESKASONI SECTIONS.

	Boularderie Line.					
	North Sydney.					
	LittleBras d'Or(M.C.pol's)	4½	(See Meat Cove line)....			
1	Alder Point (loop line)....	5	Mrs. John Arsenault.....	50 00 or commission.	Dec. 1, 1906....	The commission is 25 p.c. of the Govt. l'ne tolls in each instance and is guaranteed to amount to not less than $50 per annum.
2	Groves Point (1 mi. M. C. poles).....	3	Mrs. Mary Dunlop.....	50 00 " ..	Dec. 1, 1906....	
3	Hillside.....	4	Mrs. Christina McKenzie	50 00 " ..	Feb. 1, 1907....	
4	Boularderie West.....	4	John McIntyre.....	50 00 " ..	Jan. 1, 1907....	
5	S. S. Boularderie.....	3	Donald McRae.....	50 00 " ..	Jan. 1, 1907....	
6	Pointe Clear.....	4	Mrs. M. McLeod.....	50 00 " ..	Dec. 1, 1906....	

7	Upper Kempt Head	7	Mrs. Murdock McKenzie	50 00	"	Oct. 6, 1904	
8	Ross Ferry	6½	Robert Campbell	50 00	"	Oct. 6, 1904	
9	Boularderie Centre	6	Mrs. J. B. McKenzie	50 00	"	Oct. 6, 1904	
	Big Bras d'Or	7½	(See Meat Cove line)				
	Total miles wire	54½	Pole line 51.	450 00			
	Repairers' Sections.						
	Alder Point — Little Bras d'Or	5	Captain John Arsenault	50 00	or commission	Jan. 1, 1907	
	Big Bras d'Or — Upper Kempt Head	20	J. A. C. McKenzie	50 00	"	Jan. 1, 1907	
	Little Bras d'Or — Upper Kempt Head	24	M. McLeod	50 00	"	July 12, 1909	
	On Meat Cove poles	5½					
	General repairer		Jos. Logue		(See below)		
	Total	54½		150 00			
	Eskasoni Line.						
	North Sydney						
1	French Vale (5¾ on Gabarus poles)	11	John J. McLean	50 00	or commission	Mar. 25, 1907	The commission is 25 p.c. of the Govt. line tolls in each instance and is guaranteed to amount to not less than $50 per annum.
2	Gillis Lake	5	Daniel H. Gillis	50 00	"	Feb. 28, 1907	
3	East Bay	4	Miss M. L. McNeil	50 00	"		
4	North Side, East Bay	6	James J. Gillis	50 00	"	Jan. 15, 1907	
5	Eskasoni	5	Miss Sadie McMillan	50 00	"	Dec. 6, 1907	
6	Castle Bay	6	Miss Maria McDonald	50 00	"	Jan 10, 1907	
7	Benacadie Pond	5	J. N. McNeil	50 00	"	Mar. 20, 1909	
8	Benacadie	5	Hugh Farrell	50 00	"	Mar. 20, 1909	
9	Piper's Cove	2	M. D. McNeil	50 00	"	Mar. 20, 1909	
10	Grand Narrows	4	J. J. McNeil	50 00	"	May 1, 1910	Previously in charge of Daniel McNeil.
	Total miles of wire	53	Pole line 47¼.	500 00			
	Repairers' Sections.						
	On Meat Cove poles	5¾	A. G. McLean, McLeanville.	50 00	per annum	June 1, 1907	
	From Meat Cove Line to Gillis Lake	10¼					
	From Gillis Lake to Eskasoni (Castle Bay)	21	Duncan Gillis, North Side, East Bay	50 00	"	June 1, 1907	

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

CAPE BRETON: NORTH SYDNEY, BOULARDERIE AND ESKASONI SECTIONS—*Continued,*

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
	Repairers' Sections—Con.	Miles.		$ cts.		
	From Castle Bay to Grand Narrows	16	J. L. McDonald, Grand Narrows	50 00 per annum	June 10, 1909	
	Total	53		150 00		
	General Repairer.					
	Boularderie line	54½	Jos. Logue, North Sydney	540 00 per annum	Jan. 1, 1906	Horse hire allowed in addition.
	Eskasoni line	53				
	Gabarus line: North Sydney—Leitche's Creek	5¾				
	Meat Cove line: North Sydney—Big Bras d'Or	15				
	Total	128¼				

BAY ST. LAWRENCE—HAWKESBURY SECTION.

	Bay St. Lawrence	0	(See North Sydney line)			
1	Meat Cove (2nd wire)	7¼	" "			
2	Cape St. Lawrence	4	Mrs. C. Jamieson	50 00 or commission	Jan. 1, 1904	The commission is 25 p.c. on all business to and from the office in each instance; said commission guaranteed to be not less than at the rate of $50 per annum.
	½ way	1½				
	Poulets Cove	5½				
3	Pleasant Bay	8	Mrs. G. P. McIntosh	50 00 "	Sept. 1, 1907	
	Barren	10				
4	Cheticamp (Eastern Harbour)	10	Chas. J. Aucoin	50 00 "	Aug. 3, 1905	
5	Grand Etang	8				Closed in March, 1905.
6	Margaree Harbour	8	A. B. C. McLean	120 00 without com'n.	Oct. 20, 1896	Allowance 50 p.c. Receipts and cheques government line prior to May, 1910.
7	Margaree-Forks	8	Sarah McDougall	50 00 or commission	Sept. 10, 1908	
8	N. E. Margaree (loop wire)	10	Mrs. J. D. Ross	50 00 "	Feb. 1, 1898	

9	S. W. Margaree	4	D. D. McFarlane	50 00	"	Feb. 1, 1898	
	To loop	12					
10	Inverness (loop wire)	8	Mrs. Annie Smith	140 00	without com'n.	Aug. 1, 1908	Allowance 50 p.c. Receipts and cheques for government line prior to May, 1910.
11	Strathlorne (Willow Bank)	3	Miss C. McLean	50 00	or commission.	Nov. 1, 1908	
12	Mabou	9	Mrs. M. McDonald	120 00	without com'n.	April 1, 1887	
13	Port Hood	10	D. J. McDonald	50 00	or commission.	July 1, 1903	
14	Smith's Id. (on loop) 1 mi. cable included	3¼	Miss E. L. Smith	50 00	"	Nov. 1, 1907	
15	Henry Id. (on loop) 1½ miles cable included	3½	Miss C. McLennan	50 00	"	Nov. 8, 1907	
	To Port Hood, 2½ miles cable included	6¾					
16	Judique	10	E. McDonald	50 00	"	July 1, 1904	
17	Craignish (Craigmore)	8	Allan Cameron	50 00	"	Nov. 1, 1903	
18	Port Hastings	10	Miss M. McFarlane	50 00	"	Nov. 1, 1903	
19	Hawkesbury	3¾	Miss E. McDonald	120 00	without com'n.	Nov. 1, 1903	
	Total	171½		1,150 00			

Miles of wire, 166½; miles of cable, 5; miles of pole line, 146.

	Wycocomagh Branch Line.						
	Strathlorne (Willow Banks)	0	Mrs. Agnes McCormick	50 00	or commission.	Mar. 4 1910	Repeating office $15 per month plus $1 per mont for battery care from 1st May, 1910 (C. 972).
1	McCormick (Loch Ban)	2¼					
	To loop	6					
2	West Lake	2¾	P. M. McInnes	50 00	"	Mar 4 1910	
	To main line	2¾					
3	Brook Village	6	Matthew McDaniel	50 00	"	Mar. 4 1910	
4	Wycocomagh	12½	Daniel Ross	50 00	"	Mar. 4 1910	
	Total miles of wire	32¼	Pole line, 29½	200 00			
	Repairers' Sections.						
	General—						
	Meat Cove—Inverness	104½	A. A. Kennedy, Inverness	420 00	per annum	May 17 1910	Horse hire allowed in addition to salary.
	Inverness—Hawkesbury	67¼	J. F. McMillan, Port Hastings	420 00	"	May 17 1910	" "
	Wycocomagh Line	32¼					
	Local—						
	Bay St. Lawrence—Meat Cove	7¼	(See North Sydney Line)				
	Meat Cove — Half-Way Shanty	5½	R. Fraser	40 00	"	May 20 1903	
	Half-way Shanty—Poulets Cove	5½	E. Fraser	30 00	"	May 20 1903	

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

BAY ST. LAWRENCE—HAWKESBURY SECTION—*Continued,*

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ cts.		
	Poulets Cove—Pleasant Bay	8	K. Fraser	40 00 per annum	May 20 1903	
	Pleasant Bay—Barren	10	E. J. Timmons	40 00 "	Mar. 16 1909	
	Barren—Cheticamp	10	J. A. Chaisson	40 00 "	July 1 1905	
	Cheticamp — Grand Etang	8	Joseph L. Chaisson	40 00 "	July 1 1905	
	Grand Etang—Margaree H	8	H. K. McLean	25 00 "	July 1 1905	
	Margaree H.—S.W. Margaree and N. E. Margaree loop	22	Alex. McFarlane, sr	50 00 "	July 4 1902	Allowance previously $40, readjusted in January, 1910.
	S.W. Margaree—Strathlorne	23	J. D. McFarlane	40 00 "	June 4 1902	
	Strathlorne—Mabou	9	L. G. McDougall	40 00 "	Nov. 3 1902	
	Mabou and Judique	20	J. A. Campbell	50 00 "	Aug.. 1 1904	Of this section (see list) 5 miles is submarine cable, the land line portions covering but 4½ miles of 2-wire line for the loop.
	Judique & Port Hawkesbury	21¾	J. N. McIsaac	50 00 "		
	Pt. Hood Islands	13½	Ambroise Smith	20 00 "	Aug. 1 1908	
	Total	171½		1,345 00		

CAPE BRETON—HAWKESBURY—SCATARIE ISLAND SECTION.

	Hawkesbury	0	(See Bay St. Lawrence line)		Nov. 1 1903	The commission is 25 p.c. of the Government line tolls, and is guaranteed to amount to not less than $50 per annum. Where 50 p.c. commission is paid there is no guarantee as to amount.
1	River Bourgeois	26	M. E. Boyd	50 00 or commission.		
2	St. Peters	6	R. C. Morrison	100 00 "	Nov. 1 1903	Main battery at St. Peters.
3	Rockdale	4	D. B. Pottie	Commission (25p.c.only)	Nov. 1 1909	
	To loop	2¾				
4	Lower Lardoise loop wire)	½	Mrs. E. Finlayson	50 00 or commission.	May 11 1910	
5	Grand River	7	Miss E. A. Finlayson	50 00 "	June 1 1903	Plus $50 for repeating office.

6	St. Esprit (Laframbois Intervale).	13	Mrs. J. D. Morrison.....	50 00	" ..	Sept. 1 1906....	
7	Fourchie (Fourchu).....	13	John McKinnon.....	50 00	" ..	June 22 1910....	
	To loop.....	16					
8	Gabarus (loop wire).....	3	Miss C. Grant.....	360 00	without com'n	Jan. 16 1904....	Repeating office. Automatic repeaters for North Sydney line.
9	Louisburg.....	11	Wesley Townsend.....	50 00	or commission.	Feb. 1 1904....	
10	Big Lorraine.....	3	Fraser Wilcox.....	Accommodation office..		June 1 1910....	
11	Main-a-Dieu.....	10	Miss H. Dickson.....	100 00	or commission.	Oct. 1 1910....	Main battery at Main-a-Dieu.
	To landing.....	1					
12	Scatarie Island West (cable)	3¼	E. E. Pope.....	50 00	" ..	Aug. 15 1904....	
13	Scatarie Island East.....	7¼	J. T. Martel.....	50 00	" ..	Aug. 1 1904....	
	Total.....	126¾		960 00			

Miles of wire, 123½; miles of cable, 3¼; miles of pole line, 121¾.

	Grand River–Gabarus Line						
	Grand River.....	0	(See Hawkesbury line).				
	To loop.....	7					
1	Grand River Falls (loop wire).	3	Mrs. E. D. McKillop....	50 00	or commission.	Dec. 20 1907....	
2	Loch Lomond.....	5½	Mrs. J. McK. Fraser....	50 00	" ..	Dec. 14 1907....	
3	Enon.....	4	Miss E. McDonald.....	50 00	" ..	May 13 1908....	
	Salmon River.....	16					
	Victoria Bridge.....	8					
4	Gabarus (North Sydney line poles, 2½ miles).	5	(See Hawkesbury line).				
	Total.....	48½	Pole line, 44½.	150 00			
	N. Sydney—Gabarus Line.						
	North Sydney.....	0	See Meat Cove line.....	.....		.....	This line between North Sydney and Gabarus, without any intermediate offices prior to June, 1910, has been in operation since December 11, 1903
1	Ball's Creek.....	9	D. A. McCormick.....	Commission (25 p.c.) only		June 1 1910....	
2	Marion Bridge.....	17½	Mrs. John E. Morrison..	50 00	or commission.	June 1 1910....	
3	Gabarus (Hawkesbury pole line, 3 miles).	12	(See Hawkesbury line).				
	Total.....	38½	Pole line, 35½.....	50 00			
	Repairers' Sections.						
	Local—						
	Grand River to Enon...	19½	H. Urquhart, Grand River.....	50 00	per annum.....	June 10 1909....	

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

CAPE BRETON—HAWKSBURY—SCATARIE ISLAND SECTION—*Continued,*

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ cts.		
	Repairers' Sections—Con,					
	Grand River to Fourchu	26	D. McKillop, Grand River	50 00 per annum	June 10 1909	
	General—					
	Hawkesbury to Gabarus	89¾	G. E. Bissett, St. Peter	420 00 "	Aug. 1 1904	Horse hire allowed in addition since December, 1, 1909.
	Gabarus to N. Sydney	38½				
	Gabarus to Scatarie Id E	33½	E.M. Dickson, Louisburg	540 00 "	Aug. 1 1907	Horse hire allowed in addition.
	Gabarus to Enon	29				
				1,060 00		

New Lines—Baddeck—Nyanza, 6¼ miles; Nyanza—Little Narrows, 13¼ miles—19½ miles.

CHATHAM—ESCUMINAC, N. B. TELEGRAPH SYSTEM.

1	Chatham	0	Great Northwestern Telegraph Co.	185 00		This amount is paid for supervision of the line and office accomodation at Chatham.
2	Black River	15½	M. McDougall	50 00 or commission	July 1 1904	The commission is 25 p.c. of the Government line tariff receipts in each instance, and is guaranteed to amount to not less than $50 per annum.
3	Baie du Vin	5	M. A. Williston	50 00 "		
4	Lower Hardwicke	6	Mrs. M. Bremner	50 00 "	Aug. 1 1891	
5	Escuminac	3¾	D. Lewis	50 00 "	Sept. 1 1885	
6	Point Escuminac lighthouse	12	K. R. McLennan	50 00 "	Nov. 1 1893	$12 per annum allowed for care of main battery at Point Escuminac.
	Total	42¼		435 00		

NOVA SCOTIA TELEGRAPH SYSTEM.

Cape Sable Section.

1	Barrington	0				This line has been leased to the Barrington Telephone Company from August 12, 1897. The lease is terminable at any time.
2	Newelton (including 1½ knots cable)	11				

3	Cape Sable Island lighthouse (including ¼ mile cable)	6¾	.....	.....	.....	
	Total	17¾				

East Coast Section.

N.B.—In connection with the Signal Service a land line, 208 miles in length, was erected in 1881, between Canso and Halifax, for a bonus of $16,000, and is maintained and operated by the Western Union Telegraph Company, without further cost to the Government.

BAY OF FUNDY, N.B. TELEGRAPH SYSTEM.

Grand Manan and Campobello Islands.

						The commission is 25 p.c. on all Government line business to and from the office and commission guaranteed not to be less than at the rate of $50 per annum. When 50 p.c. commission is paid there is no guarantee as to amount.
	Grand Manan—					
	Long Eddy Cable Hut to					
1	Flaggs Cove	3	Mrs. C. C. Seeley	540 00	Nov. 18 1880	Rent $100 per annum. Fuel about $50.....
	"	.....	J. R. Parker	240 00	April 1910	
	"	.....	A. Gilmour (repairer)	60 00	Dec. 1 1894	
2	Castalia	2½	Geo. E. Dalzell	25 p.c. commission	June 1 1898	
3	Woodwards Cove	3½	M. A. Fraser	50 " "	Feb. 28 1893	
4	Grand Harbour	2	I. L. Newton	75 00 or commission	April 1 1887	$25.00 per annum included for repeating White Head Branch. Seal Cove also $25 *re* Gannet Rock Line.
5	Seal Cove	4½	J. A. Ingersoll	75 00 "	Sept. 22 1899	
6	Seal Cove	¼	Mrs. Robert Fraser	25 00 "	Jan. 1 1906	
7	Deep Cove	2	O. McLaughlin	25 p.c. "	April 1897	
8	Southern Head	3¼	C. Ingersoll	25 p.c. "	April 22 1897	Southern Head office is now operated by telephone from Seal Cove.
	Branch Lines.					
	Grand Harbour—					
9	Cheney's Island ½ knot cable	4¾	S. E. Russell	25 p.c. "	Feb. 1 1891	
10	White Head Island ¾ knot cable	1½	Mrs. W. Cossaboom	50 00 "	Feb. 1 1903	
	Cable, Long Eddy to Herring Cove	10	.....	.....	.....	
	Campobello.					
11	Herring Cove Cable Hut to Welch Pool	4¾	E. J. Mitchell	210 00 and "	May 1 1905	R $60 per annum. Fuel about $30.
	Cable across channel	1¾	Wellington Parker (lineman)	2 00 per day	.....	Employed occasionally.
12	Eastport, Me., U.S.A.	½	George H. Cushing	200 00	Dec. 26 1881	
	Total	44¼		1,450 00		

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

BAY OF FUNDY, N.B., TELEGRAPH SYSTEM—*Continued,*

Grand Manan and Campobello Islands—*Continued,*

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
	Gannet Rock Line.	Miles.		$ cts.		
	Seal Cove	0		(See above)		This line is operated in the interest of the Dept of Marine & Fisheries. Tariff to Grand Manan 15& 1. Tariff to Campobello and Eastport 25 &2
13	Wood Island (cable)	1½	P. Green	25 p.c. commission	Nov. 7 1910	
14	Little Wood Isld. (cable ½)	2¼	T. Ingalls	Accommodation.	Nov. 7 1910	
15	Gannet Rock (cable)	7¼	Agt. M. & F.	"	Nov. 7 1910	
	Total	11	(9¼ kots cable 1¾ miles land line).			

CHICOUTIMI AND NORTH OF ST. LAWRENCE TELEGRAPH SYSTEM.

Chicoutimi—Tadousac Section.

			J. C. Tache, Dist. Supt.	300 00	Jan. 1 1905	
			J. D. Villeneuve, Insp'r	660 00	April 1 1906	
			J. A. Couet, clerk	180 00	April 1 1906	
			T. Villeneuve, operator	540 00	April 1 1907	
1	Chicoutimi	0	J. P. Rivard, operator	480 00	Aug. 1 1909	
			J. Dube, messenger	120 00	Sept. 1 1909	
			M. Desbiens, cleaner	72 00	Aug. 1 1906	
			J. Fortin, repairer	420 00	June 1 1897	
2	Ste. Anne	2½	Miss A. Gauthier, op'r.	50 00	Feb. 1 1909	
			P. Gauthier, repairer	350 00	Feb. 1 1904	
3	St. Fulgence	8	Rev. G. H. Gagnon, op'r	50 00	Jan. 1 1904	
4	Lac Laurent	8	S. Gagnon, operator	50 00	April 1 1906	
			J. Brisson, repairer	360 00	June 1 1906	
5	Descente des Femmes	9	Aug. Villeneuve, op'r.	50 00	April 1 1906	
6	Ste. Marguerite Depot	34	E. Simard, operator	50 00	Aug. 1 1909	
7	Ste. Marguerite	2	Mrs. P. Hervieux, op'r.	50 00	April 1 1906	
8	Sacre Cœur	8	Miss L. Maltais, op'r.	50 00	April 1 1906	
			H. Gravel, repairer	360 00	June 1 1906	
9	Tadousac	12½	Eugene Caron, agent			See North Shore line.
		84		4,192 00		

CHICOUTIMI—PERIBONKA SECTION.

1	Chicoutimi	0	(See above).			
2	Ste. Anne	2½	" "			
	To loop	5½				
3	Shipshaw North, loop wire	4	J. Murdock, operator	50 00	Nov. 1 1903	
4	Shipshaw	1	Miss M. Dufour, op'r	50 00	Nov. 1 1907	
5	St. Leonard	4	Geo. Gagnon, operator	50 00	Sept. 1 1903	
	To loop	2				
6	St. Ambroise loop wire	8	A. Simard, operator	50 00	June 1 1905	
7	St. Charles Borromée	4½	B. Bouchard, operator	50 00	Sept. 1 1903	
8	Tache	7	Jean Fradette, op'r	50 00	Jan. 1 1908	
	To loop	4½				
9	St. Joseph d'Alma, loop wire	6	Elie Gagne, operator Gédéon Verreault, rep.	50 00 360 00	Jan. 1 1908 Mar. 1 1909	
10	St. Cœur de Marie	6	Alf. Rousseau, operator	50 00	Jan. 1 1908	
11	La Pipe	6½	Hypolite Boivin, op'r	50 00	Jan. 1 1908	
12	Honfleur	8	Charles Lindsay, op'r	50 00	Jan. 1 1909	
13	Peribonka	9	Mme. E. Niquette, op'	50 00	Jan. 1 1909	
		78½		910 00		

CHICOUTIMI—LAC CLAIR SECTION.

1	Chicoutimi	0	(See above).			
2	Ste. Anne	2½	" "			
3	Range 6	3	Thos. Simard	50 00	Nov. 1 1905	
4	Lac Charles	3	A. Dufour	50 00	Nov. 1 1904	
5	Lac Clair	4	L. Boulianne	50 00	Nov. 1 1905	
		12½		150 00		

MURRAY BAY—BAY ST. PAUL SECTION.

1	Murray Bay	0	Mrs. F. Vincent			See North Shore section.
2	Guay	5½	Jos. Demueles, operator	50 00	May 1 1907	
3	St. Agnes	4½	Jos. Goudreau, op'r	50 00	Mar. 1 1905	
4	St. Hilarion	5	A. Bergeron operator	50 00	Sept. 1 1909	
5	St. Urbain	8½	A. Boivin, operator M. Fortin, repairer			See Chicoutimi section. " " "
6	Bay St. Paul	9	F. Boivin, agent			" " "
		32½		150 00		

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

BAY ST. PAUL—PETITE RIVIERE BRANCH.

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ c.		
1	Bay St. Paul	0	F. Boivin			See Bay St. Paul, Chicoutimi section.
2	Petite Riviere (St. Francois)	13	L. S. Bouchard	50 00	Dec. 1 1903	Payment at Bay St. Paul, $25 a y. and $12 for battery care for operation of this branch to Petite Riviere.
		13		50 00		

BAY ST. PAUL—ST. PLACIDE BRANCH.

1	Bay St. Paul	0	F. Boivin			See Bay St. Paul, Chicoutimi section.
2	St. Placide	8½	D. Simard	50 00	May 1 1909	
		8½		50 00		

CHICOUTIMI AND NORTH SHORE OF ST. LAWRENCE TELEGRAPH SYSTEM.

Bay St. Paul—Chicoutimi Section.

1	Bay St. Paul		F. Boivin	420 00 per annum† 25 p.c. commission	April 1, 1885	Increase from $360, Sept. 1, 1909. *The commission on business is 25 per cent of the Government tolls of the line; the amount guaranteed to be not less than $50 per annum.
2	St. Urbain	9	A. Boivin Michel Fortin, rep'rer	50 00 or commission* 360 per annum	April 1, 1885	Increase from $270, July 1, 1909.
3	La Galette	37	S. Ouellette	150 00 or commission	Aug. 25, 1902	Salary increased to $150 per annum, June 1, 1907.
4	Ferland	27½	B. Lavoie	50 00 "	Mar. 1, 1905	Plus $25 per year for operating branch line to L'Anse St. Jean.
5	St. Alexis	10	Mrs. D. Simard	75 00 "	Nov. 1, 1899	
6	St-Alphonse de Bagotville	3	Mrs. C. Levesque	150 00 per annum	June 1, 1906	J. Fortin's division includes the branch line to L'Anse St. Jean.
7	Chicoutimi	11½				
		98		1,255 00		†Salary increased to $360 per annum, June 1, 1907.

	Branch Line.						
	St. Alexis	0	Mrs. D. Simard	75 00			
8	St. Felix d'Otis	10	P. V. Lavoie	50 00	Nov.	1, 1905	
9	L'Anse St. Jean	30	Eris Degagné, rep'rer	350 00	Nov.	1, 1907	
10	Petite Saguenay	8	M. Tremblay	50 00	Sept.	1, 1903	
11	Anse Cheval	6	Jos. Degagné	50 00	Feb.	1, 1905	(This office has been closed since April 30, 1904).
12	St. Etienne	7					
	St. Catherine Bay	17	G. Boulienne (see North Shore W. B. Line)				
		78		575 00			
	Total	176		1,830 00			

NORTH SHORE (West of Bersimis).

1	Murray Bay	0	Mrs. F. Vincent, operator	50 00 or commission	April	1, 1885	Plus $25 per year, and $12 for battery care for operation of branch to Guay.
2	Cap à l'Aigle	4	Miss S. Bergeron "	50 00 "	June	1, 1905	
3	St. Fidèle	6	Jos. Desbiens, operator	50 00 "	Dec.	1, 1904	
4	Port au Persil	7	J. A. Brassard, operator	50 00 "	May	1, 1889	
			A. Brassard, repairer	360 00	June	1, 1887	
5	Cap Saumon Light (Loop from St. Siméon)	2	Delph. Bouchard, operat	50 00 or commission	April	1, 1910	
6	St. Siméon	4	Johnny Tremblay	50 00 "	Aug.	1, 1907	
7	Baie des Rochers	12	Mde. D. G. Savard, oper	50 00 "	June	—, 1887	
8	St. Catherines Bay	18	G. Boulianne, repairer	360 00	Nov.	—, 1886	
			Mde. G. Boulianne, opr.	240 00			
9	Tadousac (1½ knot cable)	1½	J. E. Caron, operator	360 00	Nov.	1, 1888	
10	Bergeronnes	10	Mde. M. Savard, opr	50 00 or commission	April	—, 1885	
11	Bon Desir	5	Mde. E. Gauthier, opr	50 00 "	Aug.	1, 1904	
12	Escoumains	12	J. H. Topping, operator	50 00 "	Aug.	1, 1885	
13	Baie des Bacons	8	P. Bouchard, operator		May	6, 1902	Commission 25 per cent without guarantee.
14	Sault au Mouton	6	C. E. Nolet, operator	50 00 or commission	Nov.	1, 1906	
15	Mille Vaches	2	Mde. L. Puize, operator	50 00 "	Aug.	1, 1907	
16	Portneuf	11½	Leandre Bouchard, opr	50 00 "	July	1, 1890	
			E. Courbron, repairer	420 00	April	1, 1888	
17	Hamilton Cove	1	Albert Topping, opr	25 p.c. commission	Sept.	1, 1903	Accommodation office.
18	Sault au Cochon	7					Closed Sept. 30, 1896.
19	Bersimis West	31	Mrs. F. Miller, operator	50 00 or commission			
			E. Pope, Dist. Supt	600 00	April	1, 1885	
	Total	148		3,040 00			

*NOTE.—In the estimates, the maintenance of the Chicoutimi and North Shore line is provided under head of North Shore Line. They are operated conjointly.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

CHICOUTIMI AND NORTH SHORE OF ST. LAWRENCE TELEGRAPH SYSTEM.—*Continued.*

NORTH SHORE (East of Bersimis).

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ c.		
1	Bersimis East	5	A. Maloney, agent Mrs. A. Maloney asst opr Jos. Gagnon, repairer	550 00 200 00 420 00	Sept. 21 1896 July 1 1906 Aug. 12 1906	 Repeating office and 2 main batteries. Plus 50 cents per day when absent on duty.
2	Point aux Outardes	29	Miss G. Ross, operator D. Malouin, repairer	50 00 or commission 420 00	Jan. 1 1910 June 14 1907	 Plus 50 cents per day when absent on duty.
3	Point Paradis	18				
4	Manicouagan	14	P. Martel and his son	25 p.c. commission	Sept. 26 1910	
5	Mistassini	22	W. Montreuil, operator lineman	420 00	Oct. 23 1908	Plus 50 cents per day when absent on duty.
6	River Godbout	26	N. A. Comeau	50 00 or commission	Oct. 15 1885	
	River Godbout, East	½	T. Comeau, op'r	50 00 "		Accommadation. No commission paid.
7	Point des Monts	18½	Victor Faffard	50 00 "	Dec. 28 1883	
8	Trinity Bay West	5½	Jos. Poulin	50 00 "	May 16 1884	
9	Trinity Bay East	2½	A. Bilodeau	25 p.c. commission	May 1 1889	
10	Caribou Island	7	Mrs. E. Chouinard	25 "	Oct. 19 1905	
11	Egg Island Light	8½	T. Pelletier	Accommodation		No commission paid. Telephone only with Pentecost office.
12		2				
13	Pentecost	6½	P. Molloy	310 00 per annum	Sept. 17 1905	Main battery.
14	May Islands	9	Mrs. P. Fournier	25 p.c. commission	Jan. 1 1909	Closed on 15 Nov. 10, and until end of April, 11.
15	Ste. Marguerite	38½	A. Therriault	180 00 per annum	July 1 1888	Also as line repairer for 40 miles from Hall to Rock Rivers.

16	Clark City	5	North Shore Power, Railway and Navigation Company	25 p.c. commission	April 17 1903		
17	Seven Islands	17¾	P. E. Vigneault, agent P. C. Vigneault, re'pr	180 00 and 25 p.c. com 540 00	Jan. 2 1884 Aug. 16 1910		Also see to small repairs when trouble between Hall and Moisie Rivers. Plus 50 cents per day when absent on duty.
18	Moisie West	14½	Mrs. Chicoine, operator.	50 00 or commission.	June 1 1906		
19	Moisie East	1	Holliday Bros	50 00			In operation during fishing season.
20	Pigou	28	Peter Wright, repairer Mrs. P. Wright, op'r	112 00 100 00	Oct. 1 1902 Oct. 1 1902		
21	Riviere aux Graines	29	Miss A. Blaney, operator	50 00	Oct. 6 1910		Agt. M. Langlois, $12 a year for office rent.
22	Sheldrake	15	Mrs. A. Girard, op'r	50 00	Dec. 1 1904		Agt. A. Girard, $12 a year for office rent.
23	Thunder River	6½	Mrs. H. Cody, operator.	50 00	Feb. 1 1890		$12 per month for care of main battery and $12 a year for office rent.
24	Magpie	14	Geo. Poirier, operator	50 00	Sept. 17 1905		Agt. G. Poirier, $12 a year for office rent.
25	St. John River	9	Ben Chambers, op'r	50 00	Oct. 1 1899		Agt. B. Chambers, $12 a year for office rent.
26	Long Point of Mingan	10	E. H. Tetu, Dist. Supt. Mrs. E. H. Tetu, op'r J. V. Guay, agent Asst. op	1,080 00 300 00 500 00 180 00	Nov. 1 1891 Nov. 1 1903 Nov. 1 1910		Repeating office for Anticosti cable in operation since Sept. 1, 1891. (3 main batteries) repeaters.
27	Mingan	7	Mrs. C. Maloney, op'r	100 00			Salary increased to $100 per annum, March 31, 1907.
28	Point Esquimaux	24	Mrs. E. Cyr, operator E. Cyr, repairer	240 00 500 00	Sept. 1 1897 Nov. 2 1902		Main battery. Plus 50 cents per day when absent on duty. Extra allowances at Esquimaux Point Telegraph, $48 a year for office rent; $40 a year for firewood; $24 a year for storage; 25 p.c. commission.
29	Betchouanes	20	Jos. Picard, opr. and rep.	212 00	July 15 1904		A. to Pt. Esquimault, Govt. Tel. supply agt. Alfred Landry, from Betchouan eastward, salary $60 per year.
30	Piastre Bay	23	Mrs. J. Beetz, operator S. Tanguay, repairer	100 00 112 00	Sept. 18 1902 Sept. 18 1902		
31	Watichou	15	Mrs. Cl. Bourque, opr John Bourque, repairer	100 00 112 00	Dec. 1 1903 Dec. 1 1903		
32	Aguanus	21¾	Mrs. Galant, operator S. Galant, repairer	100 00 112 00	Sept. 3 1902 Sept. 3 1902		
33	Natashquan	21	Miss Vignault, opr C. Vignault, repairer	100 00 112 00	Sept. 5 1905 Sept. 5 1902		Main battery $12 per year.
34	Kegaska	33	Miss Anderson, opr Geo. Anderson, repairer.	100 00 112 00	Sept. 16 1902 Sept. 16 1902		

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

CHICOUTIMI AVD NORTH SHORE OF ST. LAWRENCE TELEGRAPH SYSTEM.—*Continued.*

NORTH SHORE (East of Bersimis)—*Continued.*

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ c.		
35	Masquaro (Now at Harrington)	18	F. W. Osborne, act. insp Mrs. Jennis, operator Wm. Foreman, repairer.	500 00 100 00 112 00	Nov. 6 1910 April 1 1906 June 1 1903	Plus 50 cents per day when absent on duty.
36	Romaine	25	Mrs. A. Guillemette opr M. Blais, repairer	100 00 112 00	Sept. 17 1902 Sept. 17 1902	
37	Wolf Bay	24	Mrs. R. Jones, opr R. Jones, repairer	100 00 150 00	Nov. 26 1902 Nov. 26 1902	
38	Point au Maurier	24	Miss P. Galibois, opr J. Galibois, repairer	100 00 112 00	Sept. 19 1902 Sept. 19 1902	
39	Harrington	20	Mrs. Jones, operator J. Jones, repairer	100 00 112 00	Sept. 20 1902 Sept. 20 1902	Telephone allowance $25 per year for repeating messages with Harrington Island since June 15, 1909.
40	Whale Head	17	Amadee Vignault, operator and repairer	212 00		
41	Mutton Bay	20	Alf. Cormier rep. and opr	444 00	June 1 1902	Mrs. A. Cormier, agt.-opr. in absence of husband acting Div. insp. on St. Augustin-Red-Bay Div.
42	Baie de Ha	27	Mrs. J. Monger, opr J. Monger, repairer	100 00 112 00	June 14 1904 June 14 1904	Opr. Mrs. A. Landry and husband to go to Mutton Bay office this spring.
43	St. Augustine	27	G. W. Burgess, rep. & opr	212 00	Sept. 25 1902	Hudson's Bay Co. post.
44	Chicatica Bay	24	Miss Esther Robin George Robin	100 00 112 00	June 30 1906 June 30 1906	
45	Rocky Bay	30	..... L. O. Chevalier, rep	..... 112 00	..... April 20 1904	Closed, opr. died Feb.5, 1911. Resignation of agt.-opr. next June, J. Kennedy to replace him as agt.-opr and rpr.
46	Bonne Esperance	7	G. Chevalier, repairer Miss Chevalier, opr	112 00 110 00	Oct. 2 1902 Oct. 2 1902	

47	Brador Bay	29		112 00		J. Jones retaking charge 27 Oct. 1910 as opr. and sent his resignation for 1st April, 1911.
			Cyrille Joncas, repairer	110 00	Oct. 10 1909	
			A. Cormier, act. insp.	500 00	Aug. 16 1910	Plus 50 cents when absent on duty.
48	Blanc Sablon	6	Thos. Morel, operator	212 00	Oct. 1 1902	
49	Forteau Bay	13	A. Hart, rep. and opr.	212 00	July 19 1902	
50	Pointe Amour	17	Thos. Whyatt, rep. & opr	112 00	Feb. 17 1903	Main battery removed from West St. Modeste to Pt. Amour on 5th Oct. 1909, allowance $50 per year
51	West St. Modeste	16	Jas. Bolger, rep. and opr	212 00	Oct. 5 1902	
52	Red Bay	13	Geo. Moore, repairer	112 00	Oct. 9 1902	
			Miss Moore, operator	100 00	Oct. 9 1902	
53	Chateau Bay	30				Closed Dec. 1, 1906.
54	Belle Isle	23¾				Cable removed June 18, 1909.
	Old Fort Bay		J. Fequet & son William	25 p.c. commission	March 29 1911	
	Totals	951¼		13,038 00		

LINE REPAIRERS, SECTIONS AND MILEAGE—MURRAY BAY TO CHATEAU BAY.

		Mileage
A. Brassard, repairer	Murray Bay to Baie des Rochers	33
G. Bouilanne repairer	Baie des Rochers to Bergeronnes	34½
G. Boulianne, repairer	St. Catherines Bay to St. Etienne branch line	17
Ed. Courbron, repairer	Bergeronnes to Riviere Colombier (16 miles west of Bersimis)	67½
Jos. Gagnon, repairer	Riviere Colombier to West Crossing Riviere aux Outardes (24 miles east of Bersimis)	40
David Malouin, repairer	East Crossing of Riviere aux Outardes to English Bay (7 miles east of Manicouagan)	44
Wm. Montreuil, repairer	English Bay to St. Nicholas Harbour (14 miles west of Godbout)	27
N. A. Comeau, repairer	St. Nicholas Harbour to Pointe des Monts	32½
Francis Gallienne, gen. repairer	Pointe des Monts to Thunder River	196¼
Ed. Cyr, gen. repairer	Thunder River to Kegaska	197¾
J. L. Osborne, gen. repairer	Kegaska to St. Augustine	202
P. C. Vignault, gen. repairer	St. Augustine to Chateau Bay	199
		1,073½

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

GROSSE ISLE QUARANTINE TELEGRAPH SYSTEM.

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ c.		
	Quebec	0	Great Northwestern Telegraph Co.	185 00	.....	This amount is paid for supervision of the line, and covers rent of pole line from Quebec to L'Ange Gardien, for which $35 per annum is charged.
	L'Ange Gardien	13				
	Orleans Island (cable)	$\frac{3}{4}$				
2	St. Pierre	$4\frac{1}{2}$	Marie Turcotte	50 00 or commission.	Mar. 1, 1885	This commission is 25 p.c. of the Government line tariff in each instance, and guaranteed to amount to not less than $50 per annum.
3	St. Petronille	$3\frac{1}{4}$	Desneiges Plante	50 00 " ..	Oct. 1, 1896	
4	St. Laurent	$6\frac{1}{2}$	M. Gobeil	120 00 and 25 per cent commission.	Sept. 15, 1888	
5	St. Jean	7	P. Pouliot, dist. supt.	1,120 00 and 25 per cent commission	Nov. 1, 1907	For local agency. Dist. Supt. and repairer.
6	St. Francois	$6\frac{3}{4}$	Helene Lemelin	50 00 or commission.	Oct. 1, 1907	
7	Isle Reaux (including 2 knots cable).	$3\frac{1}{4}$				
	Isle Reaux (land line)	$2\frac{1}{2}$				
8	Grosse Isle quarantine office (including 2 knots cable).	$3\frac{1}{2}$	Miss Julia Legace	100 00 and 25 per cent commission.	June 1, 1906	$5 per month for messenger serv. in summer, and $12 p. annum allowed for care of main batt. at Gr. Isle
	Quarantine telephone system, 2 wire line.	$1\frac{3}{4}$	.....	.....	.....	NOTE.—The telephone system on Grosse Isle since May, 1893, has comprised $1\frac{3}{4}$ miles of 2 wire line with 11 connections or stations.
	Grosse Isle to Crane Island (including 5 knots cable)	85	N. Lachance	50 00 or commission.	Nov. 1, 1907	
9	Crane Island to Montmagny (cable).	5	.....	.....	.....	Connection with the Bell Telephone System at Montmagny. Three stations on Crane Island.
	Loop Line (2 wires).					
10	St. Francois—St. Francois-Nord.	5	Mde. Irene Labbe	50 00 or commission.	July 1, 1907	
11	St. Jean—Ste. Famille	$5\frac{1}{2}$	P. Letourneau	50 00 " ..	April 2, 1904	
		$76\frac{1}{4}$		1,825 00		

NOTE.—In addition to the above, there is included in the Quarantine Dist. Supt'cy the undermentioned lines:—

	Telephone Lines.					
	Les Eboulements	0				
	Isle aux Coudres (cable)	3	.....	.....	.....	Leased to the Charlevoix and Saguenay Telephone Co.
	On Isle aux Coudres	10				
	Beauport	0				
	Laval	15	.....	.....	.....	Connection at Beauport with the Bell Telephone System.
	Total	28				

ORLEANS ISLAND TELEPHONE LINE.

1	St. Pierre	0	Jos. Ferland	50 00 or commission	Nov. 4, 1910	
2	Ste. Petronille	3¼	Desneiges Plante	25 per cent of all receipts	April 1, 1911	Allowance of $6 per month for messenger service.
3	St. Laurent	6½	Alfred Turgeon	50 00 or commission	April 1, 1911	
4	St. Jean	7	Pierre Pouliot	50 00 "	April 1, 1911	
5	St. Francois	6¾	Jos. Lepage	50 00 "	April 1, 1911	Government line connects with the Bell Telephone Co.'s line at Ange Gardien. Exchange connections made at Ste. Petronille.
6	St. Francois Nord	5	Celestin Imbeau	50 00 "	April 1, 1911	
	Branch.					
7	St. Jean—Ste. Famille	5½	Jos. Premont	50 00 "	April 1, 1911	
		34	Pole line: 34 miles.	Wire: 68 miles.		

BEAUPORT-LAVAL TELEPHONE LINE.

	Beauport	0	J. Belanger	25 p. c. commission*	Feb. 1, 1910	Special allowance of $50 per year for general agency at Beauport.
2	Valliere's Mill	7½	A. Valliere	25 p. c. commission	Feb. 1, 1910	Commission only.
3	Laval	7½	Rev. E. Giroux	Accommodation.		
4	Laval	.....	Mme. Touchette	25 p. c. commission	Feb. 1, 1910	*Commission is on Government line tolls only, and at Laval is guaranteed at the rate of $50 per year.
	Total	15				

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

BEAUPORT-LAVAL TELEPHONE LINE.

This line is under an agreement, operated in conjunction with the Bell Telephone Co.: and is directly connected with the Central Exchange of Quebec. The tariff for conversations and messages is as hereunder:

BEAUPORT-LAVAL TELEPHONE LINE—TARIFF.

Local business between Beauport and Laval or intermediate points aside from the Telephone Exchange at Beauport, 10 cents for 3 minutes conversation and proportionate charge for any period in excess of 3 minutes, or for messages, 10 cents for 20 words and 3 cents for each additional 5 words or fraction thereof.

Exchange business between Quebec or Beauport and Laval or intermediate points for connections through the exchanges: 15 cents for 3 minutes conversation and proportionate charge for any period in excess of 3 minutes, or for messages, 15 cents for 20 words and 5 cents for each additional 5 words or fraction thereof.

Through business with points on the Bell Telephone Company's lines beyond Quebec. the above rate of 15 cents, &c., to be added to the company's established rates beyond Quebec.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

ONTARIO—PELEE ISLAND TELEGRAPH SERVICE.

STATEMENT showing List of Offices, Operators or Agents, Commissions or Salaries, Summary of Messages exclusive of free messages. From March 31, 1910, to March 31, 1911.

No.	Stations.		Agents and Operators.	Salaries per Annum.	Messages Sent.	Messages Rec'd.	Date of Appointment.	Memo.
1	Dist. Supt. House	0	J. McR. Selkirk, Dist. Srpt.	$50 00 per annum				Private instrument.
2	Leamington office	0	J. McR. Selkirk, Dist. Supt.	Commission 20 p.c.	576	728	Nov. 1, 1888	
	Leamington office	2½	To cable landing (mainland)				Aug. —, 1901	Near Leamington dock.
	Mainland to Pelee Id.	17¼	To cable Landing (Island)				Nov. 1, 1888. Aug. —, 1901.	Near Scudder dock.
3	North Dock	0	C. B. Quick	Commission 25 p. c.	122	77	Nov. 1, 1888	
4	North Point Lighthouse	3	J. R. Lidwell	" "	3	2	June 1, 1899	
5	McCormick's store (31)	0¼	A. M. McCormick and Son	" "	30	9	Oct. 28, 1909	
6	Ouellette's	1¾	A. J. Ouellette	" "	86	32	June 19, 1908	
7	Pelee Club	0	Pelee Club (Island)	Private instrument	30	48	May —, 1910	Pays for messages to Leamington office.
8	W. J. McCormick		W. J. McCormick	"				
9	Hotel (Station 32)	2¾	Mrs. R. Little	Commission 25 p. c.	75	41	April 9, 1909	
10	Dr. H. O. Van Epp		Dr. H. O. Van Epp	Accommodation office			April 9, 1909	
11	West Dock	0¼	A. M. McCormick	Commission 25 p. c.	143	95	Nov. 1, 1888	
12	Srigley or Grove Ave.	3	Catherine Srigley	" "	17½	9	Nov. 12, 1908	
13	Pelee South	2	J. S. McCormick	" "	5½	3	Aug. 1, 1904	
14	Baird's House, Leamington	2¾	A. Baird	" "	69	133	Nov. 2, 1904	
15	Jackson & Moss	5	Jackson & Moss	" "	34	29	Mar. 25, 1910	Near Old Club House Station.
16	Baird's House (Pt. Pelee)	2½	A. Baird	Accommodation office			June 23, 1909	
17	Tilden's	0¼	W. Tilden	Commission 25 p. c.	45	27	April 29, 1905	
18	Point Pelee	2½	W. A. Grubb	" "	69	71	Nov. 1, 1888	
		45¾			1,304	1,304		

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

NORTHWEST TELEGRAPH LINE.

QU'APPELLE—EDMONTON SECTION.

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
				$ cts.		
1	Qu'Appelle	0	E. P. Benoit	120 00	Jan. 1, 1911	Joint with C.P.R. till Dec. 31, 1910.
2	Fort Qu'Appelle	17	P. R. Elmer	720 00	Aug. 15, 1906	
	Fort Qu'Appelle		D. Sutherland, lineman	600 00	Dec. 1, 1909	
	To loop	10				
3	Lipton	1	Can. Pac. Ry. Co.	10 p. c. com.	May 1, 1906	Agent joint with C.P.R.
	To Main line	1				
4	Kutawa	45	A. Von Lindeburg	720 00	Nov. 1, 1883	
5	South Humboldt	78	H. J. Macdonald	720 00	Feb. 1, 1904	
	To loop	55				
6	Saskatoon	14	Can. Pac. Ry. Co.	300 00	Jan. 1, 1892	Agent joint with C.P.R.
	Saskatoon		G. T. Clement, lineman	600 00	Oct. 16, 1903	
	To Main line	14				
7	Henrietta	38	W. J. Salsbury	720 00	Oct. 1, 1886	
8	Battleford	47	J. D. Noel	720 00	Oct. 1, 1900	
	Battleford		J. T. Dewan, lineman	600 00	Nov. 1, 1909	
9	Bresaylor	27	J. T. Callahan	720 00	Dec. 1, 1900	
	To loop	63				
10	Lloydminster	29	A. Bowtell	720 00	Dec. 1, 1907	At Old Fort Pitt.
	Lloydminster		G. G. Mann, lineman	720 00	Aug. 1, 1902	
	To Main line	29				At Old Fort Pitt.
11	Onion Lake	13	H. McCleneghan	720 00	Aug. 1, 1899	
12	Frog Lake	23	E. Bowtell	600 00	Mar. 1, 1911	
13	Moose	12	J. A. McCartney	720 00	June 1, 1909	
14	Elk Point	20	E. O. Boyd	25 p. c. com.	April 1, 1910	
15	St. Paul des Metis	15	J. A. Gagnon, acting agent	600 00	May 1, 1909	
16	Saddle Lake	18	J. W. Carroll	720 00	Sept. 1, 1900	Phone line from here to Industrial School, 6½ miles.
17	Pakan	36	R. Gordon	600 00	Feb. 1, 1905	
	To loop	5				
18	Andrew	5	B. Carey	600 00	Mar. 15, 1906	
			C. Norn, lineman	600 00	Mar. 15, 1906	
19	Whitford	7	Postmaster	25 p. c. com.	July 1, 1905	Branch line to Whitford, 7 miles operated by telephone.

	Andrew to Main line	5				
	Star closed					
	To loop	20				
20	Lamont	3½	L. Carey, acting agent	600 00	Nov. 15, 1910	K. A. Morrison resigned Aug. 31, 1910.
	To Main line	3½				
21	Fort Saskatchewan	24	A. W. M. Campbell	720 00	Aug. 1, 1898	
			G. Wilder	900 00	Dec. 1, 1908	
			L. Hooper, messenger	240 00	Mar. 16, 1911	T. Booth, resigned Mar. 15, 1911.
22	Edmonton	18	H. Hunt, acting lineman	720 00	Aug. 1, 1908	
			R. C. Macdonald, supt	2,200 00	Oct. 1, 1905	Salary increased to $2,200 00, April, 1911.
			J. S. Macdonald, general inspector	2,300 00	June 1, 1905	Salary increased to $2,300 00, April, 1, 1911.
		696		20,820 00		

EDMONTON—PEACE RIVER SECTION.

	Edmonton	0	Preceding table			
1	Halfway Lake	49	Jesse Egge	25 p. c. com	Jan. 1, 1910	
2	Athabasca Landing	49	Jas. McKernan	600 00	Oct. 1, 1904	
	Athabaska Landing		S. Ibbitson, lineman	900 00	Mar. 1, 1911	
3	Mirror Landing	70	V. MacLeod, acting agent	720 00	Mar. 1, 1910	V. Macleod resigned Oct. 31, 1910, and office closed for the winter.
4	Sawridge	38	C. Schurter, acting sub-agent	900 00	Oct. 7, 1910	
5	Grouard	78	J. A. Hamelin, acting lineman	900 00	Sept. 8, 1910	
	Grouard		R. Weed, acting agent	900 00	Nov. 8, 1910	R. Weed resigned March 24, 1911 Chief Lineman. Teis line was completed to Peace River Crossing Oct. 6th, 1910.
6	Peace River	83	G. E. MacLeod, acting agent	900 00	Nov. 6, 1906	
	Peace River		H. B. Hunter, acting lineman	900 00	Nov. 1, 1910	
		367		6,720 00		

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

QU'APPELLE—EDMONTON SECTION.

WOOD MOUNTAIN LINE.

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ c.		
1	Moose Jaw		Can. Pac. Ry. Co.	240 00	Dec. 1, 1891	
	Moose Jaw		H. Sikes, Battery Man.	120 00	Feb. 1, 1906	
	To loop	46				
2	Gravelburg	21	J. L. Osborne	720 00	Nov. 1, 1910	Loop constructed, office opened Oct. 6, 1910.
	To Main line	21				
3	Limerick	14	E. R. Lossing, acting agent	720 00	Dec. 1, 1908	
4	Wood Mountain	30	J. H. Thomson	720 00	Dec. 1, 1890	
	Wood Mountain		F. Brown, lineman	720 00	Nov. 1, 1905	
5	Elm Springs	10	J. Thomson	25 p. c. com.		
6	Willow Bunch	30	H. A. Noel	720 00	Oct. 19, 1904	
		172		$3,960 00		

DUCK LAKE LINE.

1	Batoche	0	D. H. Grant	120 00	Oct. 1, 1902	
2	Duck Lake	9	W. J. Ronstadt	120 00	Aug. 1, 1910	W. J. Learmouth resigned July 31, 1910.
		9		240 00		

BRANCH TELEPHONE LINES.

	Edmonton	0				This line was built in 1904 and is being operated from the Central Telephone office at Edmonton.
1	Winterburn	8½				
2	Indian Agency	5½				
3	Spurce Grove	8				
4	Stony Plain Station	6½				
5	Stony Plain Centre	3½				
		32				

	Edmonton	0				This line has been in operation to St. Albert since 1887 and to Alexandre since 1902 and is operated from the Central Telephone office at Edmonton
1	St. Albert	9				
2	Raye	12				
3	Rivière-qui-Barre	8				
4	Alexandre	5				
		34				
	File Hills Line:—					
1	Fort Qu'Appelle	0				This line was built in 1908 for the convenience of the Department of Indian Affairs exclusively.
2	Lebret	4				
3	Balcarres	11				
4	File Hills Agency	13				
		28				
	Kamsack Line:—					
1	Kamsack, C.N.R.	0				This line was built in 1907 for the Department of Indian Affairs. Kamsack is on the C. N. Ry., 100 miles N.E. of Fort Qu'-Appelle, and is in no way connected with the Government Telegraph line.
2	Dr. Wallace's office	0				
3	Indian Agency	6½				
4	St. Phillips' Mission	5				
5	Hudson Bay Co. (Pelly)	7				
	Keys Reserve	5½				
		24				This portion of the line was built in 1910.
	Duck Lake Line:—					
1	Duck Lake, C.N.R.	0				This line was built in 1902 for the use of the Department of Indian Affairs exclusively.
2	R.N.W.M. Police	0½				
3	Indian Agency	3				
		3½				
	Saddle Lake Line:—					
	Saddle Lake	0				This line was built in 1900 for the use of the Department of Indian Affairs exclusively.
1	Industrial School	6½				
		6½				

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

TELEPHONE LINES IN BRITISH COLUMBIA.

No.	Stations.	Intermediate Distance.	Agents, &c.	Positions.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.			$ cts.		
	Kamloops—Okanagan Valley Line.						
1	Kamloops	.....	L. A. Palmer	*Agent	420 00	Jan. 1, 1907.	
			L. A. Palmer	For messenger	180 00		
2	McLeods	12	Wm. McLeod	Agent	Commiss.†	July 1901.	
3	Petersons	4	J. Bulman	"	"	July, 1909.	
4	McDonalds	4	W. R. McDonald	"	"	July, 1901.	
5	Stump Lake	4	W. F. Palmer	"	"	July, 1901.	
6	Friskens	2	Jas. Friskin	"	"	June, 1905.	
7	Moores	14	J. N. Moore	"	"	July 1, 1905.	
8	Guichons	9	Jos. Guichon	"	"	July 1, 1905.	
9	Quilchena	2	J. A. Guichon	"	"	May 1, 1907.	
10	Nicola	8	Mrs. M. V. Munro	* "	600 00	July 1, 1905.	Payment was $480 prior to 1 Nov., 1910.
		.....	Mrs. M. V. Munro	Rent office	120 00	.....	
	"	.....	A. Hayward	Repairer	600 00	Nov. 1, 1910.	
11	Hospital	8	Dr. Tutill	Agent	Commiss.	Nov., 1908.	
12	Merritt	1	G. B. Armstrong	"	"	Oct., 1908.	Exchange established at Merritt, 24 Oct., 1910 with 37 subscribers. Agent G. M. Gimmell, $600 per annum..
13	Coutlee †	1	H. S. Cleasby	"	"	April, 1909.	
14	Lower Nicola	3	Mrs. R. M. Woodward	"	"	July, 1906.	
15	Hastings Ranche	12	Geo. McCullough	"	"	Nov., 1908.	
16	Aspen Grove	3	G. Robert Bates	"	"	June, 1908.	
17	Munros	2	D. L. Munro	"	"	Nov., 1908.	
18	Otter Valley	20	J. G. Thynne	"	"	Oct., 1907.	
19	Tulameen	15	J. H. Jackson	"	"	Sept., 1906.	
20	Granite Creek	9	F. P. Cooke & Co.	"	"	Oct., 1907.	
21	Princeton	11	Alex. Bell	* "	480 00	Aug., 1908.	
22	Hedley	25	F. M. Gillespie	*Acting agent	480 00		
	"	.....	F. M. Gillespie	Rent office	60 00		
23	Daly (Hedley)	.....	Daly Reduction Co.	Agent	Commiss.	Jan., 1908.	
24	Richters	20	F. Richter & Co.	"	"	Oct., 1908.	
25	Keremeos Station	1	Geo. Kirby	"	"	Jan., 1908.	
26	Fairview	18	S. McCuddy	Agent	Commiss.	July, 1909.	
27	Vasseaux Lake	9	Hazel McKenzie	"	"	Nov., 1908.	
28	Okanagan Falls	6	W. B. Hine	"	"	Oct., 1908.	
29	Penticton	16	Mrs. C. F. Layton	* "	480 00	Oct., 1907.	
	"	.....	C. F. Layton	Repairer	900 00	Aug. 15, 1910.	

30	Summerland	11	W. H. Hayes	Agent	Commiss.	July, 1906.	
31	Peachland	18	Alice McDougald	"	"	July, 1906.	
32	Gellatly	10	D. E. Gallatly	"	"	July, 1906.	
33	Westbank	1	Wm. Collins	"	"	June, 1908.	
34	Kelowna	5	H. H. Millie	Agt. & tel op.	780 00	Mar., 1905.	
35	Oyama ‡	20	Mrs. G. H. Belsey	Agent	Commiss.	Jan., 1910.	
36	Okanagan Centre ‡	2	J. N. Eakins	"	"	June, 1908.	
37	Vernon ‡	15	S. A. Muir	"	"	Mar., 1905.	
38	Vernon, C.P.R.		Lilly J. Wilcox Mary E. Carter	Joint agents with C.P. Tel.	540 00		The payment is made to the C.P. Tel.
39	Lumby (Branch) ‖	17	Miss B. Morand	Agent	Commiss.	Dec., 1907.	$45 per month; Govt. line proportion of salaries.
	Line generally		C. S. Stevens A. J. Woodburn	Superintendent General repairer	1,200 00 900 00	June, 1904. June, 1908.	
	Telegraph Wires.						
	Vernon-Kilowna	74					
	Total	412			7,740 00		

Total—412 miles of wire; 338 miles of pole line.

† Commission stations are paid 20 per cent of the Govt. line toles.
* Exchange operator and agent. Connections made with local companies at Kamloops and Pentieton.
† Branch line from Nicola.
‡ Telegraph line in operation as well between Kilowna and Vernon.
‖ Branch line from Vernon.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

LOCAL EXCHANGES IN OPERATION.

Place.	Number of Subscribers.	Rents Paid per Annum.		
		Business.	Dwellings.	General.
		$	$	$
Nicola	14	.....	.....	12
Princeton	22	24	18	.....
Hedley	13	24	18	.....

Main line rates charged are given in Tariff section of Report.

TELEPHONE LINES IN BRITISH COLUMBIA—*Continued.*

No.	Stations.	Intermediate Distance.	Agents, &c.	Positions.	Salaries per Annum.	Date of Appointment.	Memo.
	North Thompson River Line.	Miles.			$ cts.		
	Kamloops	.....	L. A. Palmer	Agent	.....	.....	Entered in Okanagan Valley section.
	"	.....		Messenger	.....	.....	
1	Hafflley Creek	14	Jas. Spratt	Agent	Commiss...	Dec., 1908.	The commission is 20 per cent of the Govt. line tolls on business done.
2	McCartens	6	Jas. McCarten	"	" ..	Dec., 1908.	
3	Struthers	6	R. Struthers	"	" ..	Dec., 1908.	
4	Louis Creek	10	A. Goudreau	"	" ..	Dec., 1908.	Line complete as far as Louis Creek in 1908.
5	Greniers	6	.....	.....	.....	.....	
6	Chu Chua	12	.....	.....	.....	.....	
7	Little Fort	10	.....	.....	.....	.....	
8	Aitkins	3	.....	.....	.....	.....	Line completed to Aitkins in 1910.
	Total	67					

This line is operated on toll system; the rates based on mileage in conjunction with the Okanagan Valley line.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

TELEPHONE LINES IN BRITISH COLUMBIA—*Continued.*

Kamloops—Vernon Section.

No.	Stations.	Intermediate Distance.	Agents, &c.	Positions.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.			$ cts.		
	Kamloops	0					
	Rose Hill						
	Barnhart Vale						Intermediate distances to be given in a later report. Total length of main line 80 miles.
	Jowsays						
	Ducks Junction						
	Duck's (Br. line)	4					
	Grand Prairie						
	Slahaltkon						
	Vernon						Line completed to Vernon in 1910.
	Total	84					

This line is operated on toll system; the rates based on mileage in conjunction with the Okanagan Valley line.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

VICTORIA AND CAPE BEALE TELEGRAPH LINE.

No.	Stations.	Intermediate Distance.	Agents, &c.	Positions.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.			$ cts.		
1	Victoria	0	Wm. Dee,	Agent	1,200 00	Dec. 1, 1907.	
			Percy H. Stevens	Messenger	240 00	April 15, 1910.	
2	Sooke	18	E. Milne	Agent	25 p. c. com	Dec. 1, 1901.	
3	Otter Point	8	K. Gordon	Agent	420 00	Oct. 1, 1908.	
			E. Gordon	Repairer	840 00	Dec. 1, 1891.	Allowance for horse hire discontinued.
4	Jordan River (Shirley)	10	J. N. MacVicar	Repairer	840 00	June 1, 1909.	
5	Slide Hill		D. H. Soule	Repairer	840 00	Feb. 1, 1911.	Vice A. Dunbrack resigned.
6	Port Renfrew	30	Walter Spencer	Agent	660 00	Mar. 22, 1911.	Vice Mrs. E. C. Williams resigned and F. C. Munn transferred.
			T. M. Baird	Repairer	840 00	Nov. 1, 1908.	
7	Camp Bay		E. Doyle	Repairer	840 00	Aug. 1, 1909.	
8	Carmanah	24	W. P. Daykin	Agent	420 00	Nov. 1, 1891	
9	Clo-oose		J. Nutting	Repairer	840 00	July 1, 1910.	Vice Mr. W. J. McDonald resigned.
10	Darling		D. Logan	Repairer	840 00	April 1, 1898.	
11	Cape Beale	28	F. C. Munn	Agent	420 00	Mar. 22, 1911.	Vice Mrs. Scott resigned, L. Lucas resigned, and L. H. Earle resigned, proportion of salary for this line, transferred from Port Renfrew.
12	Banfield		C. E. Moulsey	Repairer	840 00	Sept. 1, 1908.	
		118					
	Telephone connection for the convenience of several firms in the districts as follows:—						Phones installed for the use of Pachena Lighthouse Life Saving Patrol Men at Tsusiat and Seven Mile River (winter months only). Line Repairer Gordon, Otter Point, MacVicar, Jordan River, Soule, Slide Hill Baird, Prot Renfrew, Soyle Camp Bay; W. P. Daykin, agent, Carmanah, Spencer, agent Port Renfrew; J. Nutting, Cloose; D. Logan, Shelter Bight; Mousley, Pachena Bay; Munn, agent, Banfield; Life Saving Trail Camp; (Marine and Fisheries Department).
	J. H. Todd and Son	Wharf, Sooke		All paying $36 00 per annum in addition to the regular tariff.			
	B. C. Packers Association	Wharf, Sooke					
	J. H. Todd and Son	Otter Point					
	J. H. Todd and Son	Muir Creek					
	J. H. Todd and Son	Stoney Creek					
	B.C. Packers' Association	Point No Point					
	Michigan Pacific Lumber Co	Jordan River					
	British Canadian Lumber Co	Port Renfrew					
	Carmanah Coal Co	Near Carmanah					
	Sombrio River Mining Co	Sombrio River					

ALBERNI AND CAPE BEALE TELEGRAPH LINE.

1	Alberni	0	Mrs. P. A. Haslam	Agent	120 00	Dec. 1, 1902	Proportion of salary for this line.
			Thos. Paterson	Repairer	840 00	Feb. 1, 1911.	
2	Banfield	53	F. C. Munn	Agent	420 00	Mar. 22, 1911	Proportion of salary for this line transferred from Port Renfrew, vice Earle resigned.
			J. B. McKay	Repairer	840 00	Feb. 1, 1911.	
3	Cape Beale	4	Wm. Thompson				Office closed and opened at Banfield with telephone connection given, all business checked on Banfield One mile line constructed and telephone connection given to Life Boat Station at Banfield with Banfield office.

DENMAN AND HORNBY ISLAND TELEPHONE LINE.

1	Union Bay	0					See Nanaimo and Comox Line.
2	Fanny Bay	8					See Nanaimo and Comox Line.
3	Cable Ldg. on Denman Id	1	Wesley Piercey	Agent	25 per c.		Cable.
4	Cable Ldg. on Denman Id.	4½	Thos. Chalmers	Agent	25 p. c. com.		Land line.
5	Cable Ldg. on Hornby Id.	1	Thos. Smith	Agent	25 p. c. com.		Land line.
6	Hornby Id	1½					
		16					

Land line, 14 miles) Total, 16 miles.
Cable, 2 miles)

Annual report ending March 31, 1910, in error stating eighteen miles.

ALBERNI AND CLAYOQUOT TELEGRAPH LINE.

1	Alberni	0	Mrs. P. A. Haslam	Agent	270 00	Dec. 1, 1902.	Proportion of salary for this line.
2	Port Alberni	2	A. E. Waterhouse	Agent	25 p. c. com.	Oct. 1, 1903.	
	Franklin Creek	8					Line crosses canal at this point by submarine cable.
3	Uchucklesit	23	J. Williams	Agt. and line repr.	840 00	July 1, 1910.	Government own building and line repairer's house.
4	Toquart	9	J. E. Hillier	"	900 00	Nov. 16, 1908.	Government own office building.
5	Ucluelet	24¼	H. J. Hillier	"	840 00	Dec. 1, 1902.	$8.50 per month allowed for office rent.
6	Tofino	30 3/16	E. B. Garrard	"	840 00	Oct. 1, 1902	Government own office building and line repairer's house.
7	Stubb's Island		Accom. office				Private cable connection for local firm.
		96 3/16					
	Branches:—						
8	Toquart	0	J. E. Hillier	Agt. and line repr			
9	Seehart	9	J. E. Hillier	Accom. office			Whaling station.
10	Tofino	0	E. B. Garrard	Agt. and line repr.			
11	Mosquito Harbour	10½	Accom. office				Lumber and logging firm.
12	Long Beach	0					Point of connection to main line.
13	Clayoquot Sound	11½	Accom. office				Clayoquot Sound Canning Co.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

NANAIMO AND COMOX TELEGRAPH LINE.

No.	Stations.	Intermediate Distance.	Agents, &c.	Positions.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.			$ cts.		
1	Nanaimo	0	J. A. Buchanan	Agent	1,020 00	Feb. 1, 1911.	Office in P.O. building.
			H. W. Spencer	Messenger	240 00	Mar. 20, 1911.	
2	Wellington	5	H. R. Parker	Agent	25 p. c. com.	Mar. 1, 1911.	
3	Nanoose	15	P. L. Good	Agent	25 p. c. com.	Sept. 1, 1906.	
4	Parksville	8	L. H. Bradbury	Agent	840 00	Aug. 1, 1910.	$6.00 per month rent allowed Parksville-Qualicum section.
			Wm. Mills	Line repairer	660 00	June 1, 1903.	
5	French Creek	.....	H. Pillar	Agent	25 p. c. com.	.....	
6	Qualicum	12	Mrs. M. E. Crump	Agent	25 p. c. com.	Sept. 1, 1906.	
7	Qualicum School	1	A. L. Lockwood	Agent	25 p. c. com.	.....	Closed.
8	Fanny Bay	8	Wm. Keenan	Agent	25 p. c. com.	.....	Closed.
9	Union Bay	8	Jas. McNeil	Agent	840 00	Dec. 13, 1907.	Office accommodation supplied by Colliery Company. $10.00 allowed for horse hire.
			Thos. Hudson	Repairer	900 00	Nov. 17, 1898.	
10	Cumberland	10	H. G. Williams	Agent	840 00	.....	
11	Courtney	7	B.C. Telephone Co.	Agent	25 p. c. com.	.....	
			J. Johnson	Subscriber	25 p. c. com.	.....	Closed.
12	Comox	8	Miss B. Macdonald	Agent	660 00	Nov. 1, 1895.	$5.00 per month allowed for office rent.
13	Oyster River	36	Miss B. Woodhus	Agent	25 p. c. com.	April 1, 1909.	
14	Campbell River	36	S. A. Courtney	Agent	420 00	Nov. 1, 1910.	H. Hagstrom resigned, proportion of salary for this line.
		118					
	Branches:—						
15	Comox	0	Miss B. Macdonald	Agent	.....	.....	To give land line connection to Wireless Station.
16	Cape Lazo	6	Govt. Wireless Station	Agent	.....	.....	
17	Parksville	0	L. H. Bradbury	Agent	As above	.....	
18	Alberni	30	Mrs. Haslam	Agent	270 00	.....	Proportion of salary for this line.

Line repairer T. H. Hirst, Parksville—Cameron Lake section, appointed February 4, 1911.
Line repairer J. F. Casey, Cameron Lake—Alberni section, appointed February 4, 1911.

NANAIMO AND GABRIOLA ISLAND TELEPHONE LINE.

1	Nanaimo	0	B.C. Telephone Co.	Agents	25 p. c. com.	Feb. 1, 1909.	
2	Nanaimo River	5¼	J. Gordon	Agent	"	Feb. 1, 1909.	
3	Cable Landing Gabriola Id	¾					Cable.
4	North Gabriola	1	R. Hoggan	Agent	"	Oct. 1, 1910.	
5	Centre Gabriola	5	J. Chapple	Agent	"	Feb. 1, 1909.	
6	South Gabriola	7	J. Degnen	Agent	"	Feb. 1, 1909.	
		19					

Land line 18¼
Cable ..... ¾

19 miles.

CAMPBELL RIVER AND TEXADA ISLAND TELEGRAPH LINE.

1	Campbell River	0	S. A. Courtney	Agent	420 00	Nov. 1, 1910.	Proportion of salary for this line.$ 5.00 rent allowed
2	Quathiaski Cove	3	W. Anderson	"	25 p. c. com.	Nov. 1, 1910.	1 mile land line, 2 miles cable.
3	Heriot Bay	6¼	H. A. Bull	"	"	Nov. 1, 1910.	
4	Bagots	1½	A. F. Bagot	Line repairer		Nov. 1, 1910.	
5	Mary Island	5	S. R. Marlatt	Agent	"	Nov. 1, 1910.	5 miles cable.
6	Cortez Island	5	M. Manson	Agent	"	Nov. 1, 1910.	3 miles land line, 3 cable.
7	Lund, B.C	17	F. Thulin	Agent	"	Nov. 1, 1910.	14 miles land line, 3 cable.
8	Sliamon, B.C	12	— Brown	Agent	"	Nov. 1, 1910.	Land line.
9	Powell River	3	A. M. Oliver	Agent	840 00	Feb. 10, 1911.	Present terminus of line, cable between Powell River and Blubber Bay, Texada Island, to be laid giving connection to Blubber Bay and Van Anda.
10	Blubber Bay	5½	— Fry	Agent	25 p. c. com.	Feb. 10, 1911.	No local business between these points.
11	Van Anda	6	A. C Deighton	Agent	"	Feb. 10, 1911.	
		64½					

Land lines ..... 47 miles.
Cable 17½

64½

Permanent line repairer located at Lund, repairs all breaks in land line from Powell River to Cable Landing Sarah Point 22 miles, C. H. Franzen appointed February 1, 1911.
Land line on Valdez Island repaired temporarily by A. F. Bagot.
Land line on Mary Island repaired temporarily by S. R. Marlatt.
Land line on Cortez Island repaired temporarily by A. Hamarech.
Land line on Texada Island repaired temporarily by J. B. Fraser.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

VANCOUVER AND SALT SPRING ISLAND TELEPHONE LINE.

No.	Stations.	Intermediate Distance.	Agents, &c.	Positions.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.			$ cts.		
1	Duncan's Station	9	B.C. Tel. Co.	Agent	25 p. c. com.	July 1, 1905.	
2	Maple Bay	3	T. Aitken	Agent	"	July 1, 1905.	
3	Chisholms	¾	A. Chisholm	Agent	"	July 1, 1905.	
4	Edwards	3	R. P. Edwards	"	"	Mar. 1, 1902.	
5	Beaver Point	3	A. G. Good	"	"	Feb. 1, 1911.	
6	Cushion Cove	2	Bullman-Allison Co.	"	"	July 1, 1908.	
7	Ganges Harbour	4	G. J. Mouat & Co.	"	"	July 1, 1905.	
8	Ganges		A. R. Bittancourt	"	"	Oct. 1, 1909.	Closed.
9	South Pender		L. S. Higgs	"	"	Oct. 1, 1908.	
10	Bedwell Harbour		A. R. Spalding	"	"	Nov. 1, 1908.	
11	Browning Harbour		W. Brackett	"	"	Jan. 1, 1908.	
12	Hope Bay		J. Auchterlonie	"	"	Jan. 1, 1908.	
13	Clam Bay		A. A. Davidson	"	"	Dec. 1, 1908.	Closed.
14	Village Bay		A. Deacon	"	"	Dec. 1, 1908.	
15	Mayne Island Hotel		C. J. Macdonald	"	"	Dec. 1, 1908.	
16	Point Comfort Lighthouse		G. Georgeson	"	"	Dec. 1, 1908.	
17	Galiano Island		Burrill Bros.	"	"	Dec. 1, 1908.	

South Pender Wharf has been changedto Bedwell Harbour, to obviate mixing it with South Pender office.

GOLDEN AND WINDERMERE TELEPHONE LINE.

1	Golden	0	Mrs. J. A. Buckham	Agent	660 00		$5.00 per month allowed for house rent.
2	McDermotts	3	G. B. McDermotts	Subscriber			
3	Canyon Creek	3	F. W. Jones	Subscriber			
4	McMurdo	7	T. R. Haddon	"			
5	McKeenans	17	R. McKeenan	Agent			
6	Spillumacheen	12	W. J. Barry	Subscriber			
	Heffners Landing		H. G. Low	"			
7	Brisco	8	A. H. Mitchell	"			
	Brisco		H. Atchison	"			
8	63 Mile Post	13	— Hicks	"			
9	Sinclair	3	J. L. McKay	"			
10	Wilmer	14	Mrs. J. E. Brehaut	Agent	660 00		Office building owned by Government.
			Delphine Hotel	Subscriber			
			R. R. Bruce	"			

	Branch to Windermere:..						
11	Wilmer	0	Mrs. J. E. Brehaut	Agent			
	Bruce Ranch		R. R. Bruce	Subscriber			
	Powell Ranch		Mrs. Adami	"			
12	Athalmer	4	J. Lake	Agent	25 p. c. com.		Discontinued.
			Col. River Lumber C.	Subscriber			
			Windsor Hotel	"			
			Columbia Hotel	"			
13	Windermere	4	J. C. Pitts	Agent	25 p. c. com.		
		88					

G. E. Sanborn, line repairer between Golden and Wilmer.
Mrs. Brehaut gets assistance when necessary to repair portion between Wilmer and Windermere.
The line was shortened two miles by travelling off coast across the Columbia River at the 75 Mile Post.

GOLDEN AND WINDERMERE TELEPHONE LINE—*Continued.*

Subscribers in Golden—

Columbia River Lumber Company.
McCormack's Hotel.
J. Henderson Hotel.
H. G. Parsons Limited, Store.
Russel House.
A. C. Hamilton Livery Stable.
Imperial Bank of Canada.
C. A. Warren's Store.
Columbia Hotel.
Provincial Government Office.

GOVERNMENT TELEGRAPH SERVICE—*Con.*

SIDNEY AND SIDNEY ISLAND TELEPHONE LINE.

No.	Stations.	Intermediate Distance.	Agents, &c.	Positions.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.			$ cts.		
	Sidney	0	B.C. Tele. Co.	Agents	25 p. c. com.	July 1, 1910.	1 mile land line from Sidney office to Cable Landing. 2½ miles cable.
	Sidney Island	5	Wm. Dorgan	Agent	25 p. c. com.	July 1, 1910.	1½ miles land line from Cable Landing to Brick Works, Sidney Island.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

YUKON LINE.

Stations.	Intermediate Distance	Position.	Salaries per month.	Tariff from Ashcroft	Night Rate.	Memos.
			$ cts.			
Ashcroft	.....	C. E. Gooding, manager	110 00	.....	.....	40 p.c. paid by C.P.R.
		M. L. Burnell, day opr.	70 00	.....	.....	40 p.c. paid by C.P.R.
		A. Sullivan, night opr.	75 00	.....	.....	40 p.c. paid by C.P.R.
		H. McMillan, lineman	75 00	.....	.....	
Branch—						
Pavilion	44	Mrs. J. B. Bryson	50 p.c. Comn.	50 & 3	30 & 2	
Lillooet	22	S. A. McFarlane operator and lineman	60 00	" "	" "	$5 per month for rent, fuel and light.
Clinton	34	E. Le Bourdais, operator and lineman	60 00	25 & 2	25 & 1	$5 per month for rent, fuel and light.
59 Mile House *	12	Commission office	25 p.c. T.L. tolls	" "	" "	
70 "	11	"	"	" "	"	
83 " *	13	"	"	" "	" "	
100 " *	17	"	"	" "	" "	
105 " *	5	"	"	" "	" "	
115 "	10	G. T. Brown, opr & L. man	60 00	" "	" "	
134 " *	19	Commission office	25 p.c. T. L. tolls	" "	" "	
141 " *	7	"	"	" "	" "	
150 "	9	O. Landry, opr. & lineman	75 00	50 & 3	30 & 2	$5 per month for rent, fuel and light.
Branch—						
Harpers Camp	33	A. J. Patenaude, operator and lineman	60 00	50 & 3	30 & 2	$5 per month for rent, fuel and light.
Quesnel Forks	31	Grant Gunder, operator & lineman	66 74	" "	" "	$5 per month for rent, fuel and light.
Hydraulic	25	Commission office	50 p.c. T.L. tolls	" "	" "	
158 Mile House	8	Commission office	25 p.c. T.L. tolls	50 & 3	30 & 2	
Lynes *	11	"	"	" "	" "	
Soda Creek	9	D. Mitchell, opr. & linem'n	75 00	" "	" "	
Packards *	7	Commission office	25 p.c T.L. tolls.	" "	" "	
Alexandria	12	"	"	" "	" "	
Anders *	4	"	"	" "	" "	
Moffats *	5	"	"	" "	" "	

Wendts.....*	4	"	"	" "	" "	
Yorstons.....*	3	"	"	" "	" "	
Shepherds.....	7	"	"	" "	" "	
Quesnel.....	14	S. H. Patenaude, opr.....	75 00	" "	" "	House, fuel and light free
		J. A. Bowles, lineman.....	75 00	.....	.....	
Branch—						
Lockes.....*	13	Commission office.....	25 p.c. T.L. tolls	50 & 3	.....	
Cottonwood.....*	8	"	"	" "	.....	
Wing Dam.....*	10	"	"	" "	.....	
Stanley.....*	14	"	"	" "	.....	
Barkerville.....	16	T. F. Murphy, operator & lineman.....	60 00	" "	.....	House, fuel and light, free.

* Telephone offices on composite Telephone and Telegraph line.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

YUKON LINE—Con.

Stations.	Intermediate Distance.	Positions.	Salaries per month.	Tariff from Ashcroft.	Memos.
			$		
Blackwater	42	S. G. Lawrence, operator	75 00	75 & 5	Provisions, supplies.
		M. Montgomery, lineman	70 00	.....	" "
Bob Tail Lake	37	P. O. Burnell, operator	75 00	" "	" "
		R. A. Gooding, lineman	70 00	.....	" "
Nechacco	32	W. J. Milne, operator	75 00	75 & 5	" "
		J. D. Charleson, lineman	70 00	.....	" "
Fraser Lake	21	G. W. Proctor, operator	75 00	75 & 5	$30 per month board allowance
		H. LeDuke, lineman	70 00	.....	" "
Burns Lake	55	H. D. Birdsall, operator	75 00	100 & 7	Provisions supplied.
		W. A. Gow, lineman	70 00	.....	"
South Bulkley	27	W. Mitchell., operator	75 00	100 & 7	"
		W. N. Clark, lineman	70 00	.....	"
Aldermere	52	E. Murphy, operator	75 00	125 & 10	"
		H. Fink, lineman	70 00	.....	"
Telkwa	2	Commission office	25 p.c. T.L. toll	125 & 10	
Moricetown	28	G. T. Carpenter, opr. and lineman	75 00	125 & 10	Provisions supplied.
Hazelton	32	E. R. Cox, local manager	110 00	100 & 7	$1 per day board allowance.
		W. Wrathall, night operator	100 00	.....	" "
		L. A. Graef, day operator	85 00	.....	" "
		R. J. Rock, messenger	75 00	.....	
		J. A. Thorne, line foreman	100 00	.....	$1 per day board allowance.
Branch—					
Andimaul	20	G. W. Smith, opr. and lineman	75 00	125 & 10	$25 per month board allowance.
Bostroms	14	R. D. Lang, opr. and lineman	75 00	.....	" "
Meanskinisht	7	Commission office	25 p.c. T.L. tolls	125 & 10	
McHughs	3	H. P. Large, opr. and lineman	75 00	125 & 10	" "
Lorne Creek	10	A. J. Morrison, opr. and lineman	75 00	125 & 10	" "

Sheadys	10	H. C. Cornell, opr. and lineman	75 00	125 & 10	"	"
Hardscrabble	10	J. E. Dryden, opr. and lineman	75 00	125 & 10	"	"
Kitselas	10	W. W. Noonan, opr. and lineman	80 00	125 & 10	"	"
Copper River	7	S. W. Dobbie, opr. and lineman	75 00	150 & 10	"	"
Kitsumkalum	8	R. B. Demorest, opr. and lineman	75 00	150 & 10	"	"
Graveyard Point	15	H. B. Birch, opr. and lineman	75 00	150 & 10	"	"
Hole in Wall	15	M. R. Grimes, operator	75 00	150 & 10	"	"
		F. D. Wilson, lineman	70 00	150 & 10	"	"
McLeods	8	J. R. McCordie, opr. and lineman	75 00	150 & 10	"	"
Telegraph Point	9	V. F. Dunn, opr. and lineman	75 00	150 & 10	"	"
Aberdeen	12	J. W. Ferguson, operator	75 00	150 & 10	"	"
		R. S. Donaldson, lineman	70 00	.....	"	"
Cassiar *	13	Accommodation office	.....	150 & 10	Telegraph rental $2.50 per month.	
North Pacific *	10	Accommodation office	.....	150 & 10		
		Paul Wicks, lineman	80 00	.....		
Inverness *	2½	Accommodation office	.....	.....	Telephone rent $2.50 per month.	
Prince Rupert	13½	F. W. Dowling, circuit manager	150 00	100 & 7		
		G. W. McKay, day operator	110 00	.....		
		L. W. Waugh, night operator	110 00	.....		
		W. Blackstock, lineman	100 00	.....		
		H. L. Phelon, clerk	100 00	.....		
		F. P. Breatzen, messenger	$1.00 per day	.....		
Goergetown *	20	Commission office	25 p.c. T.L. tolls	150 & 10	Phones are also installed at Port Simpson Hospital.	
Port Simpson	10	M. W. O'Neill, operator	50 00	150 & 10	The residence of Dr. Kergin and the office of the Georgetown saw mill Co., rental $2.50 per month.	
Kispiox	16	Hugh Taylor, opr. and lineman	75 00	150 & 10	$30 per month board allowance.	
2nd Cabin	33	W. F. Weekes, operator	75 00	150 & 10	Provisions supplied..	
		P. E. Smith, lineman	70 00	.....	"	
3rd Cabin	25	A. E. Falconer, operator	75 00	150 & 10	"	
		Hunter Corner, lineman	70 00	.....	"	
4th Cabin	20	Douglas Potts, operator	75 00	150 & 10	"	
		Herbert Meehan, lineman	70 00	.....	"	
5th Cabin	20	John Wrathall, operator	100 00	150 & 10	"	
		W. R. S. Oag, lineman	$3 per day	.....	"	
6th Cabin	20	James Mooney, operator	100 00	150 & 10	"	
		J. R. Barker, lineman	$3 per day	.....	"	
7th Cabin	19	George Barrett, operator	100 00	150 & 10	"	
		Rae Hamilton, lineman	$3 per day	.....	"	
8th Cabin	19	Robert Todd, operator	100 00	150 & 10	"	
		Leonard Mason, lineman	$3 per day	.....	"	

* Telephone offices on composite Telegraph and Telephone line.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

YUKON LINE—Con.

Stations.	Intermediate Distance.	Positions.	Salaries per month.	Tariff from Ashcroft.	Memos.
			$		
9th Cabin	17	John McMillan, operator	100 00	150 & 10	"
		Carl Jepsen, lineman	$3 per day		"
Echo Lake	32	John Muir, operator	100 00	150 & 10	"
		C. W. Vance, lineman	$3 per day		"
25 Mile Cabin	25	Rod. McKay, operator	100 00	150 & 10	"
		Jos. Williams, lineman	$3 per day		"
Iskot	16	F. N. Jackson, operator	100 00	175 & 10	Provisions supplied.
		James Huston, lineman	$3 per day		"
Telegraph Creek	61	A. S. Gillespie, operator	100 00	175 & 10	$1 per day for board allowance.
		W. Scott. Simpson, lineman	75 00		" "
		A. J. Charleson, line foreman	150 00		" "
Shesley	45	Andrew Johnson, opr. & lineman	82 50	175 & 10	Provisions supplied.
Nahlin	61	J. T. Pilling, operator	82 50	200 & 15	"
		G. W. Hughes, lineman	75 00		"
Nakina	49	Walter S. Simpson, jr., operator	82 50	200 & 15	"
		Geo. Jeffrey, lineman	75 00		"
Atlin	63	A. B. Taylor, manager	116 66	200 & 15	$60 per month board allowance.
		A. J. Tennant, operator	100 00		" "
Tagish	75	W. C. Fraser, operator	82 50	225 & 15	Provisions supplied.
		Geo. Walker, lineman	75 00		"
Carcross	18	S. E. Chambers, operator	82 50	225 & 15	$1 per day board allowance.
White Horse	65	H. Gilchen, District Supt.	210 00	250 & 15	
		G. S. Fleming, operator	155 00		
		Lyle Larson, messenger	65 00		

Lower Labarge	59	E. M. Stehley, opr. and lineman	82 50	250 & 15	Provisions supp
Hootalinqua	30	R. T. McDonald, opr. and lineman	82 50	250 & 15	"
Branch—					
Masons Landing *	.....	Commission office	25 p.c. this L. tolls	250 & 15	
Livingston Creek	*	" "	.....	.....	
Big Salmon	34	Howard McMillan, operator	82 50	250 & 15	Provisions suppli · 1
		H. O. Lokken, lineman	75 00	.....	"
Yukon Crossing	38	R. P. Hall, operator	82 50	275 & 15	"
		Angus Morrison, lineman	75 00	.....	"
Selkirk	50	W. F. Watson, opr. and lineman	82 50	275 & 15	"
Coffee Creek	30	G. T. Monson, operator	82 50	275 & 15	"
		Chas. Fogelberg, lineman	75 00	.....	"
Stewart River	75	G. T. Monson, operator	82 50	275 & 15	"
		Geo. Minchin, lineman	75 00	.....	"
Ogilvie)	23	Closed temporarily	.....	.....	
Dawson	48	Wm. Brownlow, manager	150 00	300 & 20	$100 per month board allowance.
		G. A. McLachlin, operator	125 00	.....	" "
		J. P. Champagne, cashier	125 00	.....	" "
		C. A. Couture, line forman	125 00	.....	" "
		Wm. Mellish, messenger	90 00	.....	" "
Forty Mile Jct	55	W. Lafontaine, opr. and lineman	82 50	325 & 20	Provisions supplied.
International Boundary	40	Connection made here with U.S. Government line in Alaska.,	.....	.....	

* Telegraph line.

YUKON TARIFFS.

The rates given above for points north of Quesnel are one-third less than those primarily adopted, which were calculated on the general basis of 50 cents for 100 miles and 25 cents for each additional 100 miles, counting the distance from Ashcroft.

Exceptional Rates.—Hazelton to Ashcroft 1·00 and 7, June 1, 1910; Prince Rupert to Ashcroft, 1·00 and 7, November 1, 1909.

The local rates between offices north of Quesnel are calculated on the basis of 50 cents for 100 miles and 25 cents for each additional 100 miles, and the local rates between offices north of Atlin are fixed at 50 cents for each 100 miles.

Cable Messages.—On transatlantic business, the word rate is twice as much as the additional word rate given in the list for all points north of Ashcroft-Barkerville, 3 x 2=6c.; Dawson 20 x 2=40c. per word.

On transpacific business the word rate is the additional word rate plus 4c.; Barkerville, 3+4=7c.; Dawson, 20+4=24c. per word to or from Ashcroft.

Press Despatches.—For the Yukon line the rate is 1 cent per word, minimum charge, $1; this applies to the whole line. Exception, Barkerville-Ashcroft section (local), minimum charge 50 cents.

Yukon system connects at boundary with U.S. Sig. Service Telegraph System.
" " Ashcroft with Canadian Pacific Railway Telegraph.
" " Blackwater with Fort George and Alberta Telephone Company.
" " Carcross with W. P. and Y. Ry. Telegraph.
" " Quesnel Forks with Quesnel Hydraulic Co.'s Line to Hydraulic.

GOVERNMENT TELEGRAPH LINES.

SPECIAL TARIFF.

Cable Messages.—Rates for cable messages passing over the Yukon line will be found in connection with the Yukon tariff in the preceding pages.

Elsewhere, the rate for transatlantic messages passing over the government lines is the same as for ordinary through messages, excepting where the ordinary tariff is more than 25 cents; in such cases the government line rate is 4 cents per word, with a minimum charge of 25 cents. For example:—

For a message of six words or less, the charge is 25 cents for government lines.

For a message of seven words the charge is (7 x 4) 28 cents for government lines.

For a message of twelve words the charge is (12 x 4) 48 cents for government lines.

In every case the counting of words includes the address and signature in the same way as for transatlantic cable tolls.

Press Despatches.—The rate for press despatches on the government lines (excepting the Yukon line), is 20 cents per 100 words; no single message less than 20 cents.

For the Yukon line the rate is 1 cent per word, minimum charge $1; this applies to the whole line. Exception, Barkerville-Ashcroft section (local), minimum charge 50 cents.

REGULAR TARIFF.

NOVA SCOTIA.

Lines in Cape Breton.

Local rate between offices. 25-1
Through rate, on business exchanged with the Western Union Tel. to and from North Sydney transfer office. 15-1

Night messages are exchanged with the Western Union Telegraph Company for offices on these lines. Rate, 1 cent per word with minimum of 15 cents. The local night rate is 1 cent per word with minimum of 25 cents.

Line from Barrington to Cape Sable—Local rate, 12-1.

Newellton. . . . . Through rate 12-1 from Barrington, W.U. office.
Cape Sable Lighthouse. . . . . " " "

This line is now operated by the local telephone company. Terms of lease provide for former telegraph rate as above not being exceeded.

NEW BRUNSWICK.

Line from Chatham to Point Escuminac.

Local rate between offices. 25-1
Through rate, on business exchanged with the G.N.W. Tel Co., to and from Chatham transfer office. 15-1

Bay of Fundy.

Line from Eastport, Me., to Campobello, Grand Manan, and Whitehead Islands—
Local rates between offices on Grand Manan and Whitehead Islands, 15-1; Grand Manan and Campobello Island, 25-2; The Islands and Eastport, Me., 25-2, W.U.O.
Through rate same as local rate on business exchanged with W. U. Tel. at Eastport. 25-2

* Where the tariff rate is entered as 25-1 or 25-2, &c., the meaning is that the rate is 25 cents for ten words and 1 cent or 2 cents for each additional word.

QUEBEC.

Anticosti Island.

Local rate between offices. 25-1
Between offices on Anticosti Island and Gaspé. 50-2
" " " on the North Shore St. Lawrence and Chicoutimi lines. 50-2
Through rate, same as local rate on business exchanged with the G.N.W. Tel. at Gaspé. 50-2

Magdalen Islands.

Local rate between offices. 25-1
Between offices on Magdalen Islands and offices on government lines on Cape Breton. 50-2
Through rate, on business exchanged with Western Union Tel. at North Sydney same as local rate. 50-2

St. Pauls Island.

Between St. Pauls Island and offices on government lines in Cape Breton.. .. 50-2
Through rate to and from North Sydney on business exchanged with the W. U. Tel., same as local rate.. 50-2

North Shore St. Lawrence and Chicoutimi.

Local rate between offices within 100 miles apart.. 15-1
Between offices over 100 miles apart.. 25-1
Between offices on these lines and Anticosti via Long Point.. 50-2
Conjoint rate between offices on government lines west of Bersimis and offices on the G.N.W. line as far as and including Quebec.. 25-2
Through rate on business exchanged with the G.N.W. Tel. line for points beyond Quebec.. 25-1

NOTE.—The above lines connect with the G.N.W. Telegraph system at Chicoutimi and at Bay St. Paul and Murray Bay, but the checking of all through business exchanged with the company is done at Quebec.

Quarantine System.

Line from Quebec via Orleans Island and Isle aux Reaux.

Local rates between offices:—

Quebec and Grosse Isle.. 25-1
Quebec and Orleans Island and Isle Reaux.. 15-1
Orleans Island and Grosse Isle.. 25-1
Isle Reaux and Grosse Isle.. 15-1
On Orleans Island.. 15-1

Through rate same as local on business exchange with G.N.W. Tel. at Quebec.

Beauport-Laval Line (Telephone).

Local rate between offices:—

	Conversations, 3 minutes.	Messages, 20 words & 5 words.
Beauport and Laval and intermediate..	10	10-3
Quebec exchange and Laval and intermediate..	15	15-5
Through rate to be added to the Bell Telephone Company's rate beyond Quebec..	15	15-5

NOTE.—Of these 15c. tolls, $\frac{2}{3}$ goes to the company in each instance.

ONTARIO.

Pelee Island Line (Telephone).

Local rate between offices:—

On the mainland Leamington-Point Pelee.. 15-1
On the island.. 15-1
On the island and Leamington.. 25-1
Through rate on business exchanged with the G.N.W. Tel. at Leamington.. .. 15-1

This line is operated by telephone in conjunction with the Bell Telephone Co. Charges for conversations being based on local tolls plus the regular tolls of the company beyond Leamington. (Local rates, 15c or 25c. for 3 minutes conversation and proportionate charge for any period in excess of 3 minutes.)

NORTHWEST TERRITORIES—SASKATCHEWAN AND ALBERTA.

Qu'Appelle—Edmonton Line.

Local rates between offices within 12 miles apart. 15-1
Between offices already reached by company's lines, excepting when the company's rate is higher. 25-2
Between offices solely on government line. 35-2
Through rates, for business exchange with the connecting companies, same as the above local rates.

Moosejaw—Wood Mountain Line.

Local rate between offices. 25-2
Through rate the same.

BRITISH COLUMBIA.

Vancouver Island Lines.

Local rates between offices. 25-2
Conjoint rate between offices on government lines and C.P. Tel. lines on Vancouver Island. 25-2
Through rate, business exchanged with Can. Pac. Tel. at Nanaimo and Victoria, same as local rate. 25 2

Golden-Windermere Line (Telephone).

Messages.
Local and *through* rate. 25-2
Subscribers for telephones at $36 per year are exempt from above tolls for messages.

Salt Spring Island, Pender Island, &c. (Telephone).

Local rate—Conversations, 2 minutes. . . . . 25c.
Each additional minute. . . . . 15c.
Through rate—The above line connects with the B.C. Telephone Co. at Duncan Station. The company's tolls are added to the above rates on through business.
Conjoint rate—Between offices on the above islands and offices on the C.P. line, on government line reached by the C.P. Tel. on Vancouver Island. 25-2

Kamloops-Okanagan Valley System (Telephone).

Local and through rates, 25c. to 60c., according to distances between offices 100 miles apart and over, in stretches of 50 miles:—

Where message rate is	25c.	for 10 words,	2c.	for extra words;	convers'n	10c.	p. min.
"	35c.	"	3c.	"	"	15c.	"
"	40c.	"	3c.	"	"	20c.	"
"	50c.	"	4c.	"	"	25c.	"
"	60c.	"	4c.	"	"	30c.	"

Minimum charge for message, 25c.; for conversation, 15c.

	Intermediate Distances Miles.	McLeods.	Petersons.	McDonalds.	Stump Lake.	Frasers.	Friskens.	Moores.	Guichons.	Quilchena.	Nicola.	Hospital.	Merritt.	Diamond Vale.	Coutlee.	Lower Nicola.	Aspen Grove.	Otter Valley.	Tulameen.	Granite Creek.	Princeton.	Government Office.	Hedley.	Daly.	Richters.	Keremeos Station.	Fairview.	Okanagan Falls.	Penticton.	Summerland.	Peachland.	Gellatly.	Kelowna.	Okanagan Centre.	Vernon.	Vernon, C.P.R.	Lavington Ranche.	Lumby.
		12	4	4	4	16	2	14	9	2	8	8	1	..	1	3	15	22	15	9	11	..	25	..	20	1	18	15	16	11	18	10	6	22	15	..	..	17
Kamloops		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	35	35	35	35	40	40	40	40	40	50	50	50	50	50	50	50	50	50	60	60
McLeods		..	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	35	35	35	35	35	40	40	40	40	50	50	50	50	50	50	50	50	60	60
Petersons		..	..	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	35	35	35	35	40	40	40	40	50	50	50	50	50	50	50	50	60	60
McDonalds		..	..	..	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	35	35	35	35	40	40	40	40	50	50	50	50	50	50	50	50	60	60
Stump Lake		..	..	..	..	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	35	35	35	35	35	35	40	40	40	50	50	50	50	50	50	50	50	50
Frasers		..	..	..	..	..	25	25	25	25	25	25	25	25	25	25	25	25	25	25	35	35	35	35	35	35	40	40	40	50	50	50	50	50	50	50	50	50
Friskens		..	..	..	..	..	..	25	25	25	25	25	25	25	25	25	25	25	25	25	35	35	35	35	35	35	40	40	40	50	50	50	50	50	50	50	50	50
Moores		..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	25	25	25	25	25	25	35	35	35	35	40	40	40	40	50	50	50	50	50	50	50	50
Guichons		..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	25	25	25	25	25	35	35	35	35	35	40	40	40	40	50	50	50	50	50	50	50
Quilchena		..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	25	25	25	35	35	35	35	35	35	40	40	40	40	50	50	50	50	50	50	50
Nicola		..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	25	25	25	25	25	35	35	35	40	40	40	40	40	50	50	50	50	50	50
Hospital		..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	25	25	25	25	35	35	35	40	40	40	40	50	50	50	50	50	50	50
Merritt		..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	25	25	25	35	35	35	40	40	40	40	50	50	50	50	50	50	50
Diamond Vale		..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	25	25	35	35	35	40	40	40	40	50	50	50	50	50	50	50
Coutlee		..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	25	35	35	35	40	40	40	40	50	50	50	50	50	50	50
Lower Nicola		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	35	35	35	40	40	40	40	50	50	50	50	50	50	50
Aspen Grove		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	25	35	35	35	40	40	40	40	50	50	50	50	50
Otter Valley		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	35	35	35	35	35	40	40	40	40	40	40	40
Tulameen		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	35	35	35	35	40	40	40	40	40	40	40
Granite Creek		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	35	35	35	35	40	40	40	40	40	40	40
Princeton		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	35	35	40	40	40	40	40	40	40
Government Office		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	35	35	40	40	40	40	40	40	40
Hedley		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	35	35	35	40	40	40	40	40
Daly		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	35	35	35	40	40	40	40	40
Richters		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	35	35	35	35	35
Keremeos Station		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	35	35	35	35	35
Fairview		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	35	35	35	35	35
Okanagan Falls		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	35	35
Penticton		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25	35
Summerland		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	25	25	25	25	25	25
Total	338																																					

Peachland																															25	25	25	25	25	25	25
Gellatly																																25	25	25	25	25	25
Kelowna																																	25	25	25	25	25
Okanagan Centre																																		25	25	25	25
Vernon																																			25	25	25
Vernon C.P.R.																																				25	25
Lavington Ranche																																					25
Lumby																																					

APPENDICES.

GOVERNMENT TELEGRAPH SERVICE.

ANNUAL REPORT FOR 1910-11.

Sectional reference (1) Cape Breton lines.
(2) Bay of Fundy lines.
(3) Magdalen Islands.
(4) Anticosti Island lines.
(5) North Shore, St. Lawrence and Chicoutimi.
(5a) North Shore, St. Lawrence, East of Bersimis.
(6) Quarantine Telegraph system.
(7) Pelee Island system.
(8) Northwest lines.
(9) " (Inspector).
(10) British Columbia lines.
(11) Kamloops-Penticton lines.
(12) Yukon telegraphs.
(13) Cable ship *Tyrian*.

REPORT No. 1.—CAPE BRETON.

OFFICE OF THE DISTRICT SUPERINTENDENT,
ST. JOHN, N.B., July 15, 1911.

D. H. KEELEY, Esq.,
General Superintendent,
Government Telegraph Service,
Ottawa, Ont.

DEAR SIR,—I beg to submit the following report on the government telegraph lines in Cape Breton, for the year ending March 31, 1911.

	Miles in Operation.	No. of Offices.	No. of Operators.	No. of Rep'rs and Linemen.
At date of last report.....	684½	73	73	30
Added during the year.....	....	8	8	3
Offices closed during the year.....	....	1	1	
	684½	80	80	33

Added during the year, 40½ miles of poles and 55 miles of wire. The additional mileage embraces the extension between Grand Narrows and Christmas Island, 3 miles; Christmas Island and Shenacadie, 5 miles; Leitches Creek and Steele's Crossing (2 wires), 14 miles. Approximately 22½ miles of poles and 37 miles of wire. This work was in charge of general repairer Joseph Logue, of North Sydney, and completed October 24; also between Baddeck and Nyanza, 6¼ miles of poles and wire, constructed under the supervision of M. C. McLean, of Baddeck, completed November 3.

Between Nyanza and Little Narrows, 13¼ miles of poles and wire constructed under the supervision of Malcolm Morrison, of Bucklow, Victoria county, completed November 26.

New offices were opened at the undermentioned points, viz.:—

Ball's Creek, C.B., July 1, H. A. Ball, agent and operator; 25 per cent of 'This Line' receipts and checks, without guarantee.

Brooks Village, N.S., June 1, Miss Mary McDonald, agent and operator, $50 per annum.

Loch Ban (or MacCormack), N.S., June 1, Miss B. MacCormack, agent and operator, $50 per month.

West Lake Ainslee, June 1, Charles McInnes, agent and operator, $50 per month.

Whycocomagh, N.S., June 1, D. J. Ross, agent, $50 per month.

Victoria Bridge, N.S., December 18, Mrs. Alex. McKinnon, agent and operator, $50 per month.

Big Lorraine, N.S., August 18, Miss Louisa Wilcox, agent and operator, without salary, this office being established for the accommodation of Mr. Fraser Wilcox, and is a sub-station of Louisburg.

Offices closed at the undermentioned points, viz.:—

West Scatterie, N. S., August 31 under the care of Miss Ellie Pope, agent and operator; discontinued on account of Miss Pope removing from that section of the country.

Changes in office managements, salaries, &c., viz.:—

Miss M. M. Finlayson, agent at L'Ardoise, resigned on May 1, and office subsequently transferred to Mrs. E. Finlayson; salary as before, $50 per annum, guaranteed.

Mrs. E. McNeil, agent at Grand Narrows, resigned on April 30, and was succeeded by John Joseph McNeil as agent and operator; salary as before, $50 per year.

To make remuneration more equitable with work performed, advances in salaries were made to Miss A. B. C. McLean, of Margaree Harbour, from 50 per cent receipts and checks to $120 per year, and to Miss A. Smith, of Inverness, from 50 per cent receipts and checks to $140 per annum. From June 1 the salary of Miss C. McLean, agent and operator, at Strathlorne, was changed from $50 per annum to $230; increase necessary on account of this place becoming a repeating point for the offices along the Whycocomagh line.

General and Local Repairers.

On account of the extended section between Port Hastings and Meat Cove, it was deemed advisable to divide the same, placing it in charge of two, instead of one general repairer, and in this connection the undermentioned appointments were made to cover the service heretofore performed by V. A. McLellan, of Inverness, who resigned on April 30.

J. F. McMillan, general repairer, appointed on May 17, covering the section between Port Hastings and Inverness, salary $35 per month.

A. A. Kennedy, general repairer, Inverness, covering the section between Inverness and Meat Cove, salary $35 per month.

Station Repairers.

There was a readjustment of the repair section between Big Bras D'Or and Meat Cove, with new appointment of A. S. McDonald, of Cape North, salary $80 per annum, covering the section between Aspy Bay, Meat Cove and Money Point, and also the appointment of Duncan McRae, of Big Bras D'Or, salary $60 per annum, covering the section between Big Bras D'Or and North Sydney. Both appointments dating from June 6.

R. A. McDonald, local lineman for the section Ingonish to Englishtown, resigned on April 1, and was succeeded by Mr. Norman N. McLeod, of Skir Dhu, same salary as before, viz.: $100 per annum.

Mr. J. A. C. Mackenzie, local lineman for the section between Big Bras D'Or and Upper Kempt Head, resigned on June 30, and was succeeded by Donald McKenzie, of Boularderie Centre, same salary as before, $50 per annum.

J. L. McDonald, local lineman for the Grand Narrows-Eskasoni section, died on August 1, and was succeeded by Hector J. McNeil, of Piper's Cove, salary as before, $50 per annum.

E. J. Timmons, local repairer between Pleasant Bay and the Barren, died on June 30, and was succeeded by A. D. Moore, of Pleasant Bay, salary as before, $30 per annum.

General Notes, &c.

Hawkesbury-Grand River section.—General repair work was started in the latter part of July and continued until the close of the season. Fifty-three new poles were used to replace those found defective, all poles thrown out by frost reset, slack cut out, and lines placed in condition for the winter. General repairer G. E. Bissett in charge of the work.

Sydney-Scatterie section.—The line between Sydney and Gabarus, distance of 27½ miles, was carefully gone over, poles reset and braced, slack wire and bad joints cut out. Between Gabarus and Scatterie 31 old poles were replaced with new ones; work in charge of E. M. Dickson, general repairer.

North Sydney-Boularderie section.—J. F. Logue. On account of this repairer being detailed on construction account until the middle of October, there was no

opportunity to give the lines a thorough overhauling. Whatever poles, &c., were badly thrown out were reset, and lines put in condition to stand the winter weather. General repairer J. F. Logue in charge.

Big Bras D'Or-Meat Cove section.—Only general repair work was done on this line as the section between Ingonish and Meat Cove, recently repoled, is in good shape, work being principally done on the southern sections, which consisted of resetting poles, cutting out slacks, &c.; General repairer S. S. Burke in charge.

Port Hastings-Whycocomagh-Inverness section.—Work done principally on the new Whycocomagh line, built late the previous season. All poles on this line were practically reset, properly tamped and banked, guyed and braced where necessary, insulators replaced, and bushes cut clear. Thirteen new poles were put in at Hay River near Lake Ainslee, to replace those shattered by lightning early in October; General repairer J. F. McMillan in charge.

Inverness-Meat Cove section.—On this section 784 new poles were set, principally between Cheticamp and Meat Cove, where little or no work has been done for some years past. The balance of the line was carefully gone over, poles reset and braced; A. A. Kennedy, general repairer, in charge.

Respectfully submitted.

Yours faithfully,

D. C. DAWSON,
Superintendent.

Department of Public Works,
July 15, 1911.

REPORT No. 2.—BAY OF FUNDY.

OFFICE OF THE DISTRICT SUPERINTENDENT,
FLAGG'S COVE, NORTH HEAD, N.B., April 12, 1911.

D. H. KEELEY, Esq.,
General Superintendent Government Service,
Ottawa, Ont.

DEAR SIR.—I beg to submit the report for the Government Telegraph lines under my charge, for the year ending March 31, 1911.

The lines have been in good condition and working well except for a few days in the last of October, when our cable worked badly.

The *Tyrian* had just completed laying the cable between Seal Cove and Gannett Rock Light-house, so I asked Mr. McDonald to test the cable before he left. He found a bad leak in it, and this was removed before the ship left this vicinity—completed repairs on November 7, and since then the lines have been working well.

On October 27 the *Tyrian* finished work on the telephone cable from Gannett Rock Light-house, via the Life Saving Station on Little Wood Island, and Big Wood Island to Seal Cove putting a telephone at each place, and connecting with our telegraph office at Seal Cove.

The telegraph agent at Seal Cove agreed to be in the office at regular hours on Sundays, and has $25 per annum added to his salary.

This line has long been needed and is a great convenience to the lonely light keeper at Gannett Rock, and to the people of the Wood Islands. It has worked well all winter though we have had unusually severe storms; and we feared the Gannett Rock cable might not stand.

The White Head and Southern Head telephones have been working well; at White Head our agent Mrs. Cossaboom was compelled to resign on account of ill health and in July the office was moved and is now in charge of Mrs. Hector Leary, who seems to be giving satisfaction.

The telephone at Deep Cove has been in charge of several persons during the year, but the family who are in the place now will probably stay there, and will take charge of any business.

The revised statement of offices is inclosed, amended as far as possible.

There is no allowance for living expenses, horse keep, etc., when we find it necessary to hire a horse the bill goes in the general expenditures.

The general expenses for the year are $115.61 which includes $49.48 for fuel and $13 for horse hire.

Business has been very dull all the year owing to the almost complete failure of the fishing business, but we hope for better times this year.

There is an allowance of $100 per annum for rent for the Flaggs Cove office; at Welch Pool we also furnish the fuel for the Welch Pool office and $60 for rent.

Yours faithfully,

C. C. SEELY,
District Superintendent.

REPORT No. 3.—MAGDALEN ISLANDS.

OFFICE OF THE DISTRICT SUPERINTENDENT,
GRINDSTONE, MAGDALEN ISLANDS, QUE., April 20, 1911.

D. H. KEELEY, Esq.,
General Superintendent Government Telegraph Service,
Ottawa.

DEAR SIR,—I beg to submit my annual report of the telegraph lines and cables, in continuation to my last information given April 12, 1910.

On April 15, the SS. *Tyrian* repaired the cable between Meat Cove and Old Harry which had been interrupted since January 4.

On July 15, men of the SS. *Tyrian* laid 6¾ miles of cable between Entry Island and Amherst Island. At Entry Island to join the cable from the shore there to the settlement Mr. J. G. Binet (the repairer) built about a mile of land line which was completed in middle October, everything being then ready, save the two telephones not on hand. On November 19 the *Tyrian* made a trip to Entry Island for the purpose of placing the two telephones which Mr. McDonald brought and placed one at Mr. Chenell on Entry and the other at the other end at Amherst to Miss Shea. A very good exchange has been made between both places ever since.

On October 18, a new office was opened at Aurigny between Amherst Harbour and Amherst Island lighthouse. No additional work was done to put up this office except a couple new poles planted with the line for it. The Etang du Nord lighthouse office is not always regularly in operation on account of no operator to look after it. Mr. Arsenau the light house keeper being not able to attend to telegraphy properly has members of his family, but they are leaving him and the moment the competent member attendant leaves another has to be initiated. In my last report I suggested a telephone, may I insist once more upon having the matter in operation and put a telephone there instead of a double line to Etang du Nord village, the expenditure being only the apparatus, it would be a much better convenience. Dur-

ing the present winter Dr. Solomon (by permission granted by government) has strung a telephone line on our telegraph poles from his residence to Mr. Binet's telegraph office at his own expense and subject to be removed at any objection from the department.

A Marconi station was erected and installed last November, about ¾ mile distance from my office, and since its opening we have had many opportunities to be in touch with each other for the transmission of reports, messages, &c., a telephone would therefore be very useful for these transfers. This wireless station has had a good deal of lettergrams through the winter on account of its much quicker way for communication. Our lines and cables are working fairly well and have done so through the winter. Hoping this report will give you all the necessary information, I remain,

Yours faithfully,

A. LeBOURDAIS,
District Superintendent.

REPORT No. 4.—ANTICOSTI ISLAND.

OFFICE OF THE DISTRICT SUPERINTENDENT,
WEST POINT, ANTICOSTI ISLAND, QUE., April 8, 1911.

D. H. KEELEY, Esq.,
General Superintendent, Government Telegraph Service,
Ottawa.

DEAR SIR,—I beg leave to submit my annual report on government telegraph service under my charge, for the year ending March 31, 1911, as requested by your letter, dated Ottawa, 3rd instant.

We have 230 miles of line in operation, and I can only repeat myself in regard to the hard and dangerous travelling on the whole length of our line, making the travelling long and tedious for our repairers, and consequently the cost of keeping the line in good working condition is comparatively high.

I am pleased to say that our line is in a good working order and has been so the whole year round.

Fox Bay telegraph office having been closed, two years ago, is since in communication with Heath Point telegraph office by telephone. Business is telephoned to Heath Point station and from thence by telegraph.

I am also pleased to say that both our cables seem to be all right. The ice has this far played no damage on them, and they are both O.K.

New spruce telegraph poles have been put on from English bay to the end of the north shore, cable distance 12 miles, to replace the old ones (spruce also) which were in a rotten state.

We have nine telegraph stations on the Island. The following are the names of the oversaid stations with their respective agents and salaries, viz.—

—	Operators.	Salary per annum.
		$ cts.
English Bay	F. Cabot	360 00
West Point	Alf. Malouin	100 00
Ellis Bay	Jos. Duguay	25 p. c. com.
S. W. Point	A. Lemieux	480 00
S. W. Point	L. Lemieux (assistant)	180 00
Salt Lake	E. Bourget	100 00
Shallop Creek	B. Bradley	360 00
South Point	E. Laprise	100 00
Heath Point	C. Hubert	200 00
Fox Bay	(Closed).	
West Point	Lrz. Malouin (substitute operator)	480 00
	General Repairers.	
English Bay	Horatio Malouin	420 00
Salt Lake	Jos. Bourget	420 00
	District Superintendent.	
West Point	Alfred Malouin	404 00

Last July, I had to send Lorenzo Malouin to Heath Point to put a new Inker instrument at that station, the old one being out of order.

Maintenance of the line during the past twelve months, viz., from April 1, 1910 to March 31, 1911, amounts to $1,421.57. This comprises all amounts paid here apart from salaries.

The traffic revenues of our line, not including the month of March, as I have yet no returns from the offices is $2,495.55 of which Ellis Bay station alone has traffic revenues for $1,686.87.

Business at that last named station had only began last June, it augurs well for the future. I am sure traffic will increase a good deal during this year, as a large plant for pulp wood has been put up by Mr. Menier.

As the cost of living is increasing every year, I would humbly beg leave to call your attention to the staff salaries and see that our agents are sufficiently paid not to live in opulence but only decently. I am sure your department will consider the matter and deal fairly with our staff.

The whole humbly submitted.

I have the honour to be, sir,
Your obedient servant,

ALF. MALOUIN.

REPORT No. 5.—NORTH SHORT AND CHICOUTIMI.

CHICOUTIMI, April 1, 1911.

D. H. KEELEY, Esq.,
General Superintendent of Government Telegraph Service,
Department of Public Works,
Ottawa.

DEAR SIR,—I beg leave to submit herewith my annual report on the government telegraph lines in Chicoutimi, Saguenay and Charlevoix counties, for the last fiscal year, ending March 31, 1910.

CHICOUTIMI OFFICE STAFF.

Chicoutimi office staff, see Public Works Report, 1909-10, page 66, part V.

MAINTENANCE.

I have under my control about 575 miles of line, distributed along the three counties mentioned above; in general the condition of the line was good.

Lines No. 13, from Quebec to Baie St. Paul, and from Baie St. Paul to Murray Bay, operated by the Great Northwestern and government, the service of this part of the line was good.

Lines 13 and 21, from Quebec to Labrador.—Line No. 21, double line from Malbaie to Ste. Catherine, and from Ste. Catherine to Bersimis, on line No. 13. Bersimis is the terminus of my section, on the north shore.

On the section from Malbaie to Bersimis, the line was repaired; as you are aware this part of the line is divided in three sections; very important repairs were made in the three sections, poles were replaced, new wire stretched, bridges repaired, at Bersimis Crossing; the old pier was replaced by an aerial stretch of wire, and at the same time building it clear of the properties of private owners.

Line No. 40.—From Baie St. Paul to Chicoutimi, this part of the line was in good working order.

As reported last year, on the 1st of March, 1910, I received instructions to shift the line in La Savanne, which work was done, and I have the pleasure to inform you that it is a nice piece of work; the work was done under the direction of Mr. D. Bouchard.

Line No. 41.—Baie St. Paul to Ste. Agnes and Murray Bay, this line is in a good condition.

Line No. 42.—From Chicoutimi to Péribonka, the iron tower built on the south shore of the Saguenay river to support the wire between the two shores was damaged by ice in the spring, and was repaired; this line has given a good service.

Line No. 44.—From Baie St. Paul to Petite Rivière St. François, is in good working order.

Line No. 45.—From Ste. Anne to Lac Clair, working well.

Line No. 46.—From Baie St. Paul to St. Placide, this line has given satisfaction.

Line No. 48.—Loop line, Ste. Anne to St. Ambroise, in good condition.

Line No. 52.—Loop line from Taché to Alma, in good condition.

Line No. 39.—Chicoutimi to Ste. Catherine, on the south shore of the Saguenay river. On this line burnt trees were removed from Ste. Catherine to Anse à Cheval.

Line No. 50.—From Chicoutimi to Tadousac, on the north shore of the Saguenay river, repairs were made on both sections of the linemen, Gravel and Brisson; this line continues on No. 13 to Labrador; as far as my section is concerned, the line in general was good.

In general the lines were in good shape, and with the assistance of the operators, linemen, we had a good service.

EXPENDITURE.

Maintenance of Offices.

April, 1910 (salaries only)	$ 774 24
May, 1910 "	774 24
June, 1910 "	774 24
July, 1910 "	774 24
August, 1910 "	774 24
September, 1910 "	789 24
October, 1910 "	785 08
November, 1910 "	785 08
December, 1910 "	785 08
January, 1911 "	785 08
February, 1911 "	785 08
March, 1911 "	789 21
La Savanne road, shifting of line	311 95
Repairs to tower	370 54
Repairs from Murray Bay to Bersimis	6,184 17
Repairs from Ste. Catherine to Anse au Cheval	100 00
Repairs from Sarcé Cœur to Lac à Résimond	232 25
For rent of office at La Galette, 1908-9-10	75 00
Telephones, rent	99 08
Medical assistance to H. Laprise	25 50
One silk tent	16 50
Supplies from the Empire Electric and Manufact.	482 12
" Ahearn & Soper	225 60
" Alexander Macpherson	92 40
" Mechanic Supply	85 14
" Révillon & Freres	25 00
Repairs from St. Alexis to Ste. Anne	23 38
Sundries	125 66
Accounts in connection with maintenance of offices	783 90
Making a grand total of expenditure	$18,633 24

I have the honour to be, sir,
Your obedient servant,

J. C. TACHE,
District Superintendent.

CHICOUTIMI AND NORTH ST. LAWRENCE TELEGRAPH SYSTEMS.

CHICOUTIMI—TADOUSAC SECTION.

	Station.	Intermediate Distatce.	Agents and Operators.	Salaries per annum.	Date of Appointment.
				$ ets.	
1	Chicoutimi	0	J. C. Tache, dist. supt	300 00	Jan. 1, 1905
			J. D. Villeneuve, inspector	720 00	April 1, 1906
			J. A. Couet, clerk	180 00	April, 1, 1906
			T. Villeneuve, operator	600 00	Apr. 1, 1907
			J. P. Rivard, operator	540 00	Aug. 1, 1909
			J. Dube, messenger	120 00	Sept. 1, 1909
			M. Desbiens, cleaner	72 00	Aug. 1, 1906
			J. Fortin, repairer	420 00	June 1, 1897
2	Ste. Anne	2½	Miss A. Gauthier, operator	50 00	Feb. 1, 1909
			P. Gauthier, repairer	350 00	Feb. 1, 1904
3	*St. Fulgence	8	E. Tremblay, operator	50 00	April 1, 1911
4	Lac Laurent	8	S. Gagnon, operator	50 00	April 1, 1906
			J. Brisson, repairer	360 00	June 1, 1906
5	Descente des Femmes	9	Aug. Villeneuve, operator	50 00	April 1, 1906
6	Ste. Marguerite Dept	34	E. Simard, operator	50 00	Aug. 1, 1906
7	Ste. Marguerite	2	Mrs. P. Hervieux, operator	50 00	April 1, 1906
8	Sacre Coeur	8	Miss L. Maltais, operator	50 00	April 1, 1906
			H. Gravel, repairer	360 00	June 1, 1906
9	†Tadousac	12½	Eugene Caron, agent		
		84		4,372 00	

*Rev. Gagnon has resigned. †See N.S. line.

CHICOUTIMI-PERIBONKA SECTION.

1	Chicoutimi	0	See above.		
2	Ste. Anne	2½	See above.		
	To loop	5½			
3	Shipshaw North (loop wire)	.....	J. Murdock, operator	50 00	Nov. 1, 1903
4	Shipshaw	1	Miss M. Dufour. operator	50 00	Nov. 1, 1907
5	St. Leonard	4	Geo. Gagnon, operator	50 00	Sept. 1, 1903
	To loop	2			
6	St. Ambroise (loop wire)	8	A. Simard, operator	50 00	June 1, 1905
7	St. Charles Borromee	4½	B. Bouchard, operator	50 00	Sept. 1, 1903
8	Tache	7	Jean Fradette, operator	50 00	Jan. 1, 1908
	To loop	4½			
9	St. Joseph d'Alma (loop wire)	6	Elie Gagne, operator	50 00	Jan. 1, 1908
			Gedeon Verreault, repairer	360 00	Mar. 1, 1909
10	St. Coeur de Marie	6	Alf. Rousseau, operator	50 00	Jan. 1, 1908
11	La Pipe	6½	Hypolithe Boivin, operator	50 00	Jan. 1, 1908
12	Honfleur	8	Charles Lindsay, operator	50 00	Jan. 1, 1909
13	Peribonka	9	Mme. E. Niquette, operator	50 00	Jan. 1, 1909
		78½		910 00	

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

STE. ANNE-LAC CLAIR SECTION.

No.	Station.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.
				$ cts.	
1	Ste. Anne	0	See above.		
2	Lac Charles	7	A. Dufour, operator	50 00	Nov. 1, 1904
3	Lac Clair	4	L. Boulianne, operator	50 00	Nov. 1, 1905
	Ste. Anne (6 Range)	.....	.....	.....	Closed.
		11		100 00	

MURRAY BAY—BAY ST. PAUL SECTION.

1	Murray Bay	0	Mrs. F. Vincent	5 00	†
2	Guay	5½	Jos. Demeules, operator	50 00	May 1, 1907
3	Ste. Agnes	4½	Jos. Gaudreau, operator	50 00	Mar. 1, 1905
4	St. Hilarion	5	A. Bergeron, operator	50 00	Sept. 1, 1909
	**St. Urbain	8½	J. B. Simard, operator M. Fortin, repairer	5 00	
6	Bay St. Paul	9	F. Boivin, agent		
		32½		150 00	

†See N.S.S. **See C.S.

BAY ST. PAUL—PETITE RIVIERE BRANCH.

1	Bay St. Paul	0	F. Boivin see Bay St. Paul, Chi	coutimi S.	
2	Petite Riviere St. Francois	13	A. Bouchard, operator	50 00	Aug. 1, 1910
		13		50 00	

BAY ST. PAUL—ST. PLACIDE BRANCH.

1	Bay St. Paul	0	F. Boivin see Bay St. Paul, Chi	coutimi.	
2	St. Placide	8½	D. Simard, operator	50 00	May 1, 1909
		8		50 00	

BAY ST. PAUL—CHICOUTIMI SECTION.

1	Bay St. Paul	.....	F. Boivin, agent	420 00 (No com.)	April 1, 1885
2	St. Urbain	9	J. B. Simard Michel Fortin, repairer	360 00	April 1, 1885
3	La Galette	37	S. Ouellette, operator	150 00	Aug. 25, 1902
4	Ferland	27½	B. Lavoie, operator	50 00	Mar. 1, 1905
5	St. Alexis	10	Mrs. D. Simard, operator	75 00	Nov. 1,1892
6	St. Alphonse de Bagotville	3	Mrs. C. Levesque, operator	150 00	June 1, 1906
7	Chicoutimi	11½			
		98		1,255 00	

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

CHICOUTIMI—STE. CATHERINE SECTION SOUTH SHORE SAGUENAY RIVER.

No.	Station.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.
				$ cts.	
1	Chicoutimi	0	See above.		
2	St. Alphonse de Bagotville	11½	Mrs. C. Levesque, operator	150 00	June 1, 1906
3	St. Alexis	2	Mrs. D. Simard, operator	75 00	Nov. 1, 1899
4	St. Felix	10	P. V. V. Lavoie, operator	50 00	Nov. 1, 1905
5	Riviere Eternite Camp	15	Nil Simard, operator	No salary and open only during winter..	Dec. 1, 1909
6	L'Anse St. Jean	15	Eric Desgagne, operator and repairer.	400 00	Nov. 1, 1907
7	Petit Saguenay	8	M. Tremblay, operator	50 00	Sept. 1, 1903
8	L'Anse au Cheval	6	Closed, operator	.....	Feb. 1, 1905
9	Ste. Catherine Bay	24	G. Boulianne (see North Shore, W. B. Line).		
		91½		725 00	

NORTH SHORE WEST OF BERSIMIS.

1	Murray Bay	0	Mrs. F. Vincent, operator	87 00	April 1, 1885
2	Cap a l'Aigle	4	Miss S. Bergeron, operator	50 00	June 1, 1905
3	St. Fidele	6	J. Desbiens, operator	50 00	Dec. 1, 1904
4	Port au Persil	7	A. Brassard, operator and rep'r.	470 00	June 1, 1897
5	Cap Saumon Light House	2	D. Bouchard, operator	50 00	April 1, 1910
6	St. Simeon	4	J. Tremblay, operator	50 00	Aug. 1, 1907
7	Baie des Rochers	12	Madame D. G. Savard, operator	50 00	June 1, 1887
8	Ste. Catherine Bay	18	G. Boulianne, repairer Mad. G. Boulianne, operator	360 00 240 00	Nov. 1, 1886 Nov. 1, 1886
9	Tadousac (1½ knot cable)	1½	J. E. Caron, operator	360 00	Nov. 1, 1888
10	Tadousac Hotel	.....	Accommodation for summer only		
11	Bergeronnes	10	Madame M. Savard, operator	50 00	April 1, 1885
12	Bon-Desir	5	Madame E. Gauthier, operator	50 00	Aug. 1, 1904
13	Escoumains	12	J. H. Topping, operator	Com.	Aug. 1, 1885
14	Sault au Mouton	14	C. E. Nolet, operator	"	Nov. 1, 1906
15	Mille-Vaches	2	Madame L. Piuze, operator	50 00	Aug. 1, 1907
16	Portneuf	11½	L. Bouchard, operator E. Courbron, repairer	50 00 420 00	July 1, 1890 April 1, 1888
17	Hamilton Cove	1	A. Topping (commission Sept. 1, 1903).		
18	Bersimis West	38	Madame F. Miller, operator	50 00	
			E. Pope, district supt	600 00	April 1, 1885
		148		3,037 00	

REPORT No. 5a.—NORTH SHORE, EAST OF BERSIMIS TELEGRAPH.

OFFICE OF THE DISTRICT SUPERINTENDENT,
LONG POINT OF MINGAN, QUEBEC, April 1, 1911.

D. H. KEELEY, Esq.,
General Superintendent, Government Telegraph Service,
Ottawa, Ont.

DEAR SIR,—I beg to submit my annual report from April 1, 1910 to March 31, 1911 of Government North Shore Telegraph Line from Bersimis eastward to Chateau Bay a distance og 1,075 miles. The usual overhauling, clearance of line from Bersimis to Red Bay (30 miles west of Chateau Bay) has been satisfactorily done with the gangs of four division line inspectors (in charge of 200 miles each) and of section repairers on the remainder of the distance.

Telegraph poles, braces, camps, bridges, shelter huts, barges, canoes, &c., have also been renewed or repaired on the whole distance.

The number of agents, operators and assistant operators is 90, division inspectors 4, section repairers 29, 123.

I an also sending a revised and corrected tabular statement of offices, staff, salary, &c. Closing, opening and re-opening of offices, resignations and appointments of telegraph agents, &c.

April 14, 1910.—Temporary closing of Whale Head office.

May 20, 1910.—Closing of English Point winter accommodation telegraph office and also closing of Egg Island summer accommodation telegraph office. At this latter place there is now only a telephone connection with the one at Pentecost telegraph office.

May 25, 1910.—Division inspector E. Cyr, began general repairs.

June 1, 1910.—Reopening of Blanc-Sablon office.

June 11, 1910.—Reopening of Moisie East accommodation office.

June 20 1910.—Division inspector Gallienne began general repairs.

June 20, 1910.—Authorization received for the opening of an accommodation office at Trout river, 8 miles east of Moisie river.

June 28, 1910.—Reopening of Bonne Espérance office.

July 5, 1910.—Division inspector J. L. Osborne began general repairs.

August 5, 1910.—Dismissal of Francis Gallienne as division line inspector and his eldest son taking temporary foremanship.

August 11, 1910.—Removal of telegraph office from Bonne Espérance to Salmon river for the summer.

August 16, 1910.—Division inspector C. Vigneault (from St. Augustin to Chateau bay) reached Seven Islands to replace F. Gallienne on Point des Monts, Thunder River Division. Baie des Moutons agent operator with Insp. Vigneau's men acting as inspector to finish repairs on eastern division, and his wife replacing him temporarily as agent operator at Mutton bay.

September 14, 1910.—Closing of Moisie east accommodation office till next summer.

September 15, 1910.—Resignation of agent operator Achille Fournier at Long Pointe of Mingan Repeating Office.

September 28, 1910.—Reopening of Manicouigan accomodation office between Point Outardes and Mistassini offices. Commission 25 per 100. Telegraph agent Pascal Martel and his son as operator.

October 4, 1910.—General repairs completed on Inspector Cyr's division.

October 6, 1910.—Miss Elizabeth Girard resigned and Miss Amanda Blaney replaced her to-day as operator and school teacher at Rivière aux Grains.

October 15, 1910.—Reopening of Whale Head office.

October 15, 1910.—General repairs completed on Insp. J. L. Osborne's division.

October 17, 1910.—Closing of Blanc Sablon office till next spring.

October 25, 1910.—General repairs completed by Insp. C. Vigneault on Point des Monts, Thunder Bay division.

October 27, 1910.—Resignation yesterday of operator Alphonse Blais as operator at Brador and retaking charge to-day of same office by telegraphist Johnny Jones for the winter.

November 5, 1910.—Division inspector J. L. Osborne left the coast to-day for the Northwest, his brother F. W. Osborne replacing him for the winter on Kegaska-St. Augustin division.

November 10, 1910.—Operator J. Victor Guay reached Long Point of Mingan repeating office to-day, his appointment dating from November 1, 1910.

January 31, 1911.—Closing of Rocky Bay office. The operator Mrs. Charles Kennedy died on February 5, 1911.

March 13, 1911.—Brador operator Johnny Jones sending his resignation for April 1.

March 21, 1911.—Rocky Bay agent and section repairer L. Owen Chevalier, cannot keep telegraph office any more, but will visit his section until June. Recommendation to appoint James Kennedy as agent operator and repairer to take charge there, in May or June next, on same condition as before.

March 29, 1910.—Opening of a telegraph office at Old Fort Bay, 7 miles west of Bonne Espérance. Agent James Fequet, operator his son William. It is on commission of 25 per cent.

Trusting that you have in this report the required information.

I remain, sir,
Your obedient servant,

E. H. TETU,
District Superintendent.

REPORT No. 6.

St. Jean, Isle d'Orléans, March 31, 1911.

D. H. Keeley, Esq.,
General Superintendent, Government Telegraph Service,
Ottawa.

Dear Sir,—I have the honour to submit my annual report on the operations of the telephone and telegraph lines of the Grosse Isle Quarantine Division, including the land lines and submarine cables, from Quebec to Isle aux Coudres, for the fiscal year ending March 31, 1911.

During the winter of 1909-10, five submarine cables were interrupted by the ice as follows:—

1. The cable connecting Isle aux Grues and Montmagny, December 12, 1909.

2. One of the telephone cables between L'Ange Gardien and St. Pierre, I.O., February 1, 1910.

3. The same cable on March 2, 1910.

4. The cable between St. François, I.O., and Reaux Island, April 10,1910.

5. The cable between St. François, I.O., and Baie St. Paul, September 25, 1909.

These were all repaired and safely placed in trenches by the SS. *Tyrian,* during May and June, 1910.

The telephone cable, connecting Isle aux Grues and Montmagny, was again interrupted on December 11, 1910.

The signal service reports from the Isle aux Grues lighthouse are transmitted to Quebec by telephone to Grosse Isle and from there by the Marconi wireless.

A spare cable was placed at each of the following places by the SS. *Tyrian,* during June and July:—From Ange Gardien to St. Pierre, I.O.; St. François to Reaux Island; Reaux Island to Grosse Isle. These cables could be used if the telephone line from Isle d'Orléans is combined to the Quarantine and Isle aux Grues systems.

In September, 1910, I built two buildings 6 feet by 6 feet, one at St. Pierre and one at Ange Gardien, at the cable landings so as to protect them. In October and November, I put up two No. 12 copper wires on the telegraph poles from St. Laurent to St. François and St. François Nord, with a station at St. Famille. There are four offices on the line, viz.:—St. Jean, Ste. Famille, St. François and St. François Nord. The agents were appointed by the department and instructed by myself. This line has been satisfactory since its installation. It is connected to the Bell Company's line from St. Laurent to Ste. Petronille, the connection with Quebec being made at Ste. Petronille.

As previously reported, a double circuit was placed by the department from Quebec to Ange Gardien on posts of the Bell Company, and from this last place to Mr. A. Gobeil's residence.

The distance from Mr. Gobeil's residence to the two copper wires is about a mile, and if two wires were placed on this stretch, the circuit would be complete from Quebec to St. François, and as there are two spare cables between St. François, Reaux Island and Grosse Isle, this circuit would be completed to Isle aux Grues by putting a metallic circuit on Reaux Island.

During the construction of the metallic circuit, we replaced about 200 posts between St. Laurent and St. François. I have 150 posts on hand at Ste. Petronille to replace old ones from Ste. Petronille east.

I beg to suggest the replacing of all the posts by new ones of 30 feet in length from Isle d'Orléans and Reaux Island, as with the double line they are sure to break before long.

During the year, the different lines of the division were repaired and renewed where necessary. Except for accidental interruptions the telegraph and telephone lines of my division have given satisfaction.

The employees, agents and operators have given faithful service and have kept their offices in a most satisfactory manner.

It would be a great advantage for me to have, always on hand, all the stationery and supplies required for the offices of my division. I could place this in the storeroom.

The details of the length of the lines, names of agents, salaries, &c., is attached.

I have the honour to be, sir,
Your humble servant,

J. P. POULIOT,
Superintendent.

REPORT No. 7.—PELEE ISLAND.

LEAMINGTON, ONT., April 10, 1911.

D. H. KEELEY,
General Superintendent Government Telegraph Service,
Otawa.

DEAR SIR,—In the matter of the Pelee Island Telephone system from March 31, 1910, to March 31, 1911, I beg to report as follows:—

1. The line on the Island is in good working order and repair with the exception of a few poles on the rocky portion of the line which will require a few braces to keep them perpendicular; also to avoid washouts, about twenty poles near the North Point Lighthouse required to be shifted from 20 to 30 rods eastward to the new dyke. We have tried side-blocks on trees but they are not satisfactory as they also are occasionally washed out causing trouble. In May of 1910 the Pelee Club on Pelee Island connected their premises with the island wire at Ouellette's. Their premises being three-quarters of a mile to the westward of that office.

2. The line on the mainland from Leamington office to the cable landing at Lake Erie and thence to Point Pelee is in good order and working satisfactorily.

3. Last May when repairing the cable we found it broken in a new place near the channel and had to repair several splices which were badly strained near the break. Communication was interrupted about July 12 and repairs made by August 2. Again about August 18, the cable ceased working satisfactorily and was repaired September 26. On both the latter occasions the trouble was from strained splices in that portion of the cable which had been dragged and strained by the ice during the winter of 1907-8, and had previously tested all right. About December 21, 1910, after a heavy gale from the west which caused some heavy ice shoves in the lake the cable was again in trouble until February 17, 1911, when a heavy gale from the east broke up the ice shoving it westward and for several days we could talk quite plainly as if the wires which had been strained had again come together. After that until about two weeks ago when the lake was cleared of ice the conditions were variable, but since then we have been talking allright. I expect to go to the island shortly and will see then whether I can locate the trouble which I consider would be greatly remedied by making the line metallic and cutting off all instruments on the island with the exception of say three or four, placing the others on separate wires and connecting by a switch say at the North Dock office with the cable for Leamington or for interchange with the main line offices on the island. Such change would require cross-arms, top pins, wire, braces, &c., the poles at present in use being suitable for such purpose.

I herewith submit a list of the offices, operators or agents, rates of commission or salary, and summary of messages sent and received from March 31, 1910 to March 31, 1911.

Yours most respectfully,

JOHN McR. SELKIRK,
District Superintendent.

REPORT No. 8.—NORTHWEST LINES.

EDMONTON, ALTA., April 3, 1911.

D. H. KEELEY, Esq.,
General Superintendent Government Telegraph Service,
Ottawa, Canada.

DEAR SIR,—I beg to submit herewith my annual report of the Northwest Lines covering conditions, repairs, construction and changes in staff up to March 31, 1911.

CONDITIONS GENERALLY.

With the exception of a severe storm period during January, in which several of our linemen were snowed in and some of them severely frostbitten, and in the north, where fierce forest fires raged for a time last summer, the line was kept in good working order.

Owing to decay and the ravages of prairie fires and lightning it was found necessary to renew many poles and in some places to remove the line from the fields to the highway. As stated in a previous report, at the time of building the lines, the major part of the country was unsurveyed. As a result, the line is now found to be running across farms in all localities. The whole country through which our lines are running is settling up rapidly, and many requests are coming in from the settlers to have the poles removed from their fields to the highway; they finding them a great hindrance to the working of their farm machinery. To have this work done to the satisfaction of all will entail a great amount of work, and consequently a large expenditure. I understand the department has this change now under consideration. Many new poles will also be required for the coming year to replace those now becoming useless through age and weather conditions.

Our chief transfer point for outside business has been tansferred from Qu'Appelle, Sask., to Saskatoon, Sask., at the request of the Canadian Pacific Telegraph Company, no change being made in the rate.

CONSTRUCTION.

Saskatchewan Division.—A loop line was built from a point 1 mile west of our old Star office, south to Lamont, a distance of 3½ miles. Owing to the Canadian Northern railway passing 3½ miles south of Star that village was practically deserted, all moving to Lamont. Our office at Star also was closed, and one opened at Lamont. The cost of this work ($458.85) was charged to maintenance.

Peace River Line.—During the year this line was constructed from a point 76 miles northwest of Athabasca Landing to Peace River Crossing, a distance of 193 miles at a cost of $21,521.65. This line was finished on October 6, 1910, and is found to be a great benefit to the settlers, and intending settlers of the northern districts. The offices opened along the route are Sawridge, 108 miles; Grouard, 186 miles; and Peace River Crossing, 269 miles, the distances being computed from Athabasca Landing. Grouard is one of the best revenue producing offices on the northwest lines. Poles were also erected, and wire and insulators distributed for a further distance of 15 miles, to Shaftesbury Settlement. It will, however, necessitate a further expenditure of $200 to purchase sideblocks, and complete construction of this work.

Moosejaw, Wood Mountain Division.—Beginning at a point 46 miles south of Moosejaw, a loop line was constructed due west to Gravelburg, a distance of 21 miles,

at a cost of $5,263.98. Gravelburg is a large settlement 45 miles from the nearest point on a railway, and this telegraph connection is much appreciated by the people of that district.

Duck Lake—Batoche Line.—It was found necessary to repole this line throughout, a distance of 9 miles, and remove it to the highway, owing to its running through fields the entire distance, and on account of the poles being in an advanced state of decay. This was done at a cost of $489.26. The work was charged to maintenance.

Kamsack Telephone Line.—This line was extended from the Kamsack Indian Agency to Fort Pelly and Keys Indian Reserve, a distance of 17½ miles at a cost of $1,595.83. This line was built for the use of the Department of Indian Affairs exclusively.

BUILDINGS.

Moose.—A new office dwelling was erected at Moose at a cost of $1,200.

Battleford.—Stable built, well dug and pump installed at a cost of $999.80.

REPAIRS.

Onion Lake.—Repairs to Onion Lake office. Dwelling found necessary and authorized by the department at a cost of $85.80.

Poles.—During the past year it was found necessary to purchase 450 poles for repairing purposes as follows: Henrietta, 280; Battleford, 100; Andrew, 30; Saddle Lake, 40; at a total cost of $665.50. The prairie fires in the Henrietta district were particularly severe, which accounts for the number of poles required on that section.

The outfitting of the repairers on the north line was a large item in the maintenance appropriation for the year. Athabasca Landing, Sawridge and Grouard linemen were suppled with horses, sleighs, wagons and harness at a cost of $1,601.55.

ADDITIONS AND CHANGES IN STAFF.

Qu'Appelle.—E. P. Benoit, agent, in place of Canadian Pacific railway.
Frog Lake.—Mrs. E. A. Bowtell, agent. New office opened.
Lamont.—Miss L. Carey, acting agent. New office.
Edmonton.—L. Hooper, messenger, T. Booth resigned.
Athabasca Landing.—S. Ibbitson, lineman. New appointment.
Mirror Landing.—Closed for winter.
Sawridge.—C. J. Schurter, acting sub-agent. New office.
Grouard.—J. A. Hamelin, acting agent. New office.
Grouard.—Roy Weed, acting lineman.
Peace River Crossing.—G. E. MacLeod, chief lineman and acting agent.
Peace River Crossing.—H. B. Hunter, acting lineman. New office.
Gravelburg.—J. L. Osborne, sub-agent. New office.
Duck Lake.—W. H. Ronstadt, agent. W. J. Learmouth resigned
Star.—Closed. K. A. Morrison, resigned.

Beginning April 1, 1911, the following changes will be made: James Minns to be lineman at Athabasca Landing; lineman Ibbitson, of Athabasca Landing will go to Grouard as acting agent; acting agent Hamelin, of Grouard goes to Gravelburg as sub-agent and agent Osborne of Gravelburg will go to Saskatoon as agent.

NEW OFFICES OPENED.

Frog Lake, Sask., May, 1910.
Elk Point, Alta, April, 1910.
Sawridge, Alta, October, 1910.
Grouard, Alta., August, 1910.

Peace River Crossing, Alta., October, 1910.
Lamont, Alta., November, 1910.
Gravelburg, Sask., October, 1910.

OFFICES CLOSED.

Warman, Sask., April, 1910. Canadian Northern railway could not supply service.

Star, Alta., November, 1910. Office transferred to Lamont.

Mirror Landing, Alta., October, 1910. Closed for winter.

I have the honour to be, Sir,
Your obedient servant,

ROBERT C. MACDONALD,
District Superintendent.

REPORT No. 9.

OFFICE OF THE GENERAL INSPECTOR,
(SASKATCHEWAN, ALBERTA AND BRITISH COLUMBIA)
EDMONTON, ALTA., April 24, 1911.

D. H. KEELEY, Esq.,
General Superintendent,
Ottawa.

DEAR SIR,—I beg to submit herewith a report covering the lines in my inspectorate for the fiscal year ending March 31, 1911.

NORTHWEST LINES.

QU'APPELLE—EDMONTON SECTION.

Except for a short period during January, when fierce storms prevailed over the entire prairie country, this line has been kept in good working order. The country through which the line passes is filling up rapidly, including those districts farthest from a railway. The usefulness of the line has thus been extended, and to the outlying communities it has proven invaluable as an aid to settlement. I am also pleased to be able to report that the service given in the handling of business has been excellent, proving most satisfactory to the public at large. During the year, at the instance of the Canadian Pacific Telegraph Co., our chief transfer point was removed from Qu'Appelle to Saskatoon. As rates remain as before, this change makes no difference to the public, and as we are placing our own agent at Saskatoon during April good service will be maintained. Many requests are being made by farmers along the route of the line to have it removed from the fields, and established along the highway, as the poles interfere materially with their harvesting operations. In our own interests this should be done as early as possible, since linemen are finding increasing difficulty in making repairs owing to the obstructions offered by fences. As a lineman must tie up his horses to walk through a field possibly a mile in length, and then return to them, it is evident that much times is lost.

The agents on this line know their work well, and send in their returns promptly and correctly made out. Any delays in this regard have been from points where there is a joint office.

To extend the benefit of the service our office at Star was transferred during the summer to Lamont, 4 miles distant, a much larger constituency being served by the change.

NORTHWEST LINES.

Location of Lines.	Points Connected.	Year.	Land Lines.		Total Mileage.	Number of Offices.	Messages Sent.
North West	Qu'Appelle—Edmonton	1883	584½	.....	584½	16	
	Edmonton—Athabasca Landing	1904	98	.....	98	2	
	Athabasca Landing—Mirror Landing	1909	70	.....	70	1	
	Mirror Landing—Peace River Crossing	1910	199	.....	199	3	
	Moosejaw—Wood Mountain	1885	90	.....	90	3	
	Wood Mountain—Willow Bunch	1904	40	.....	40	2	
	Gravelburg (loop) near Limerick	1910	42	.....	42	1	
	Saskatoon (loop)	1892	28	.....	28	1	
	Edmonton—Indian Agency—Stony Plain	1904	32	.....	32	5	
	Edmonton—St. Albert	1887	9	.....	9	1	
	St. Albert—Que Barre—Alexandre	1902	25	.....	25	3	
	Duck Lake—Batoche	1902–10	9	.....	9	2	24,520
	Duck Lake—Indian Agency	1902	3½	.....	3½	3	
	Lloydminster (loop) near Onion Lake	1904–09	58	.....	58	1	
	Andrew (loop) near Pakan	1904	10	.....	10	1	
	Andrew—Whitford	1905	7	.....	7	1	
	Lamont (loop) near Star	1910	7	.....	7	1	
	Lipton (loop) near Fort Qu'Appelle	1906	2	.....	2	1	
	Fort Qu'Appelle—File Hills Indian Agency	1907	28	.....	28	4	
	Saddle Lake—Industrial School	1900	6½	.....	6½	1	
	Kamsack—Indian Agency	1907	6½	.....	6½	2	
	Kamsack—Indian Agency—Pelly—Keys Reserve	1910	17½	.....	17½	4	
			1,372		1,372	59	

BUILDINGS.

Moose.—During the year an office dwelling was erected at Moose at a cost of $1,200.

Battleford.—At Battleford, a stable was built, a well dug, and other repairs made at a cost of $999.80.

The buildings owned by the service are for most part in good condition with the exception of the Battleford office, which it has been found most difficult to heat properly. During the winter, in order to keep the battery from freezing, it was found necessary to keep a coal oil stove lighted continuously in the cellar. The upper portion of the building was equally hard to heat.

EDMONTON—PEACE RIVER SECTION.

This line was completed to Mirror Landing in the season of 1909-10. Construction was resumed as early as possible in the spring of 1910, and the line completed to Peace River Crossing at the beginning of October, 1910. Its completion was somewhat delayed owing to fierce forest fires, which destroyed a number of poles, and prevented the men from working continuously. Since its completion it has worked well, with the exception of a period in January, when the thermometer registered 60 degrees below zero, snapping the new wire in many places .This intense cold was followed by strong winds which overturned great numbers of trees, so that the linemen had a difficult task to make the necessary repairs. I would recommend that an additional lineman-operator be appointed to be stationed at Mirror Landing between Athabasca Landing and Sawridge. This is a transfer point for boats on the Athabasca, so that the public as well as the service would benefit by establishing a permanent station there.

North of Athabasca Landing all offices are temporarily located in whatever buildings could be secured, but I understand appropriations may be available to permit of erecting our own buildings this coming summer at Sawridge, Grouard and Peace River Crossing.

From all points of the north we are continually in receipt of letters expressing the delight of the people in having telegraph connection, and business men from that territory visiting Edmonton, come to our office to express their great satisfaction at the action of the department in building this line.

Immigration is pouring into the Peace river country at an unprecedented rate, while the indications are that it will continue to do so in an even greater volume.

Owing to the distance from a railway base the cost of maintenance will undoubtedly prove greater on this division than on any portion of our lines. All supplies must be freighted from Edmonton, distant from Peace river, 367 miles, over a country where trails are, at some seasons, practically impassible.

WOOD MOUNTAIN LINE.

During the past season a loop was built into Gravelburg from our main line, a distance of 21 miles. As I have already reported to the department, the Wood Mountain main line, built hurriedly during the rebellion 26 years ago, requires to be rebuilt throughout, with the exception of about 12 miles from Moosejaw, south. Great numbers of the original poles are still in place, and these are rotted so completely as to be useless.

The line having been built prior to surveys runs zigzag across country, and as the district has filled up with settlers during the past four years, these are now asking that the poles be removed from their farms to the highways. There appears little likelihood of a railway being constructed through the Willow Bunch and Wood Mountain districts in the near future, and as both these places are centres for trails

from Montana and Dakota, it will be necessary to maintain offices at these points for some time to come.

Owing to the conditions of the poles, interruptions to the working of the line have been frequent. Complaints have been made by offices that difficulty was frequently experienced in getting the transfer office at Moosejaw to answer calls. This difficulty will be obviated shortly, as we are about to place our own agent in the Moosejaw office.

DUCK LAKE—BATOCHE LINE.

During the past season the line was removed to the highway and repoled throughout. It is therefore in excellent condition.

KAMSACK—INDIAN AGENCY.

During the year this line was extended from the Indian agency, its former terminus, to Key's reserve, an additional distance of 17½ miles. The line is exclusively for the use of the Indian Department.

The telephone lines, Saddle Lake-Indian Industrial School, Fort Qu'Appelle-File Hills, Duck Lake-Indian Agency, Andrew-Whitford, are all in good working order

Should it be decided to go ahead with the construction of the lines applied for this season, a large addition will necessarily be made to the cost of maintenance. Horses, harness, vehicles will have to be provided for, in addition to the salaries and office expenses. As there is practically no settlement along the proposed Fort McMurray line, quarters would have to be built. The Battleford Isle-la-Crosse district being better settled it might be possible to obtain temporary quarters for the season.

Owing to the demand for operators and linemen, it has become practically impossible to secure any competent man for less than $75 per month. In cases where no dwelling is provided I would strongly recommend that employees at present on the staff should have their salaries increased to that figure, otherwise we will lose those whose service it is desirable to retain.

In view of the increase and prospective increase of mileage, and number of offices, I would again recommend that a warehouse be established here, large enough to hold a season's supply of material. Such a warehouse could, if considered advisable, be utilized for British Columbia supples as well.

BRITISH COLUMBIA.

KAMLOOPS—VERNON TELEPHONE.

In June last, under instructions from the department I proceeded to Kamloops, and there arranged with Superintendent Stevens for the building of a telephone line from Kamloops to Vernon, thus completing a circuit from Kamloops through the Nicola, Similikameen and Okanagan Valleys back to Kamloops.

During the past year it has not been found necessary to visit the lines under Superintendent Henderson's jurisdiction.

I have the honour to be, Sir,
Your obedient servant,

J. S. MACDONALD,
General Inspector.

REPORT No. 10.—BRITISH COLUMBIA.

VICTORIA, April 27, 1911.

D. H. KEELEY, Esq.,
General Superintendent Government Telegraph Service,
Ottawa, Ont.

DEAR SIR,—I have the honour to submit the annual report of the telegraph and telephone lines under my charge for the year ending March 31, 1911.

Victoria and Cape Beale Telegraph Line.—I am pleased to be able to report that the service given on this line during the year was very satisfactory except during the months of November, December and January, when the Vancouver Island Power Company were cutting their right-of-way from Jordan river to Victoria for power transmission line, doing which, they followed our line very closely, nearly all the way. This right-of-way is from 300 to 400 feet wide and is through heavy timber all the way, almost to the city limits. Very frequent interruption was caused to our line by the falling of the timber. Everything was done by the company to keep up the line and to repair when down as expeditiously as possible in conjunction with our line repairers. Taking advantage of the company's right-of-way, our line has been transferred to it from the old trail, and for the whole distance from Victoria to Jordan river, about 45 miles will be less subject to interruption than before. Poles have been renewed and reset for the whole distance. When the work of constructing the power plant at Jordan river was commenced the company were given permission to string their own telephone wire on our poles on condition that when the transmission line was completed, the line would revert to the government. This has been carried out and an additional wire strung between Victoria and Jordan river, giving us a metallic circuit for telephone service, in addition to our telegraph wire through to Banfield. We will shortly be in a position to give telephone communication to the fish trap owners and others separate from the telegraphs as at present which while serving the purpose of communication to these isolated camps was not as satisfactory as could be desired. Direct communication will be established with our Victoria office for telephones and by an arrangement with the British Columbia Telephone Company at their exchange in Victoria parties at the various points between Victoria and Jordan river will be able to speak with any subscriber in Victoria or any point connected by long distance wire to Vancouver, which will be a great boon to those concerned.

The foot bridges between Jordan river and Port Renfrew have all been restored. A section of the wire has been changed betwen Lost Crek and Sombrio, from the bush to near the beach, avoiding two very steep mountains over which the line ran. Between the line repairers house at Slide Hill and Lost Creek was a stiff journey of an hour and a half, whereas now it can be travelled in twenty minutes. At the crossing of Lost Creek a heavy wire cable with guide ropes and cage has been installed and is proving a very satisfactory means of crossing. The river in winter is a raging torrent and aside from the cable nothing but a high bridge would suffice. From the west side of Lost Creek to the Sombrio the line has been lengthened by the change, but an improvement has been affected by it being near the salt water and not subject to such deep snow as was often found on the mountain.

On the Port Renfrew-Kowshedt section the line has been transferred from the north side of the San Juan Mountain to the southside. A new trail has been cut and the wire strung. This has been of great service during the past winter, repairs being much easier and more quickly accomplished on account of so much less snow.

The trail requires to be logged out and this cannot be done by the line repairer without assistance as the timber is very heavy. Considerable work was done on the Kowshedt-Clo-oose section transferring the line to the beach wherever possible in order to avoid trouble from falling timber, the portion between Camp bay and Seven Mile river cannot be so dealt with as the shore line for that section is of high sandstone bluff, and the sea dashes itself against the bottom at high tides and in wind storms, and the only route the line can follow is where it is now located, and that is of a very rough timbered and swampy country, this portion has always given trouble and should be put in as good condition as possible, and would suggest a corduroy of heavy timber in the swamps and the reconstruction of the trail through the timber by cutting out all logs, &c.

From Seven Mile to Clo-oose the wire in general follows the beach, is much freer from interruption than when it was in the bush and is easily repaired.

It is expected that the new trail being constructed by the Marine and Fisheries Department will in general follow the telegraph line route and our line repairer has instructions to place the wire on the trail when completed. The eastern portion between Clo-oos and Nitnat of the Clo-oos-Pachena section is also largely on the beach and will be transferred to the new trail when that is constructed, our line repairer having same instructions already referred to in connection with the previous section. From Nitnat to Pachena and Pachena to Banfield the line is on the new trail and has given every satisfaction.

The telegraph line from Banfield to Cape Beale is in very great need of repair and reconstruction. From Banfield office to the head of Banfield creek the wire is in the bush and follows a very tortuous trail and should be placed on trees at the water edge on Banfield creek so that the line repairer could see and repair trouble from motor launch. The trail from the head of Banfield creek to Cape Beale should be improved, logs cut out and brush removed, wire placed on green trees when available and old poles renewed.

About one mile of line was constructed from the head of Banfield creek to the life boat station on the west side of the creek and telephone installed.

Alberni and Cape Beale Telegraph Line.—Up to February 1 last, this line was repaired and maintained by the Canadian Pacific Railway Telegrph Company, when our own line repairers were appointed and supplied with motor launches for line work. It will be necessary to do considerable reconstruction work on this line before satisfactory service will be obtained, much of the line is constructed across cut-offs instead of following the shore line, rendering it more liable to interruption and more difficult to repair. The line should be brought to the water edge except in the case of very short cut-offs, the country along the shores of Alberni canal except in very few instances is of such a nature as to practically prohibit line repairers walking over their sections, and water travel being easier and quicker it is very desirable that the wire should be as far as possible placed at the water edge.

Alberni and Clayoquot Telegraph Line.—During the year this line has had considerable repairs made to the worst portions of the line between Franklin Creek Cable Crossing on the Alberni canal and Tofino, the wire being brought out of the bush to the water edge, placed on green trees wherever possible, the limbs of the trees cut off sufficiently high above the wire to prevent touching same when rain or snow falling.

The branch lines from Toquart to Sechart whaling station and Long Beach to Clayoquot Sound were also put in order and improved as above. Considerable logging out of the trail in connection with the former branch line having to be done as the trail passes through a very heavily timbered country, and trees frequently falling across which the line repairers unaided are unable to remove.

A line four miles long was constructed at Ucluelet to give telephone connection to the lifeboat station, Coxswain house and Look-out station.

Complaint was frequent during the year from the line repairers especially at Uchucklesit that the section from Franklin creek to Port Alberni was not repaired as promptly as possible causing them to travel over their sections in search of trouble when the cause was on the Franklin creek-Port Alberni section. This portion of the line like the Alberni and Cape Beale line was in charge of the Canadian Pacific Railway Telegraph Company's line repairers up to February 1 last, when our own line repairers were appointed and I am pleased to say that an improvement in the conditions are already manifest, but in order to secure a satisfactory service on the Victoria and Cape Beale, Alberni-Cape Beale and Alberni-Clayoquot lines, the Alberni-Cape Beale line will require very considerable repair, almost amounting to reconstruction. The poles now in use are rotten and unsafe to climb, the trees, used for poles have been topped and become dead and rotten and are also unsafe to climb, many portions are in the bush and should be on the shore of the canal for facility in finding troubles and repairing. I would again urge that motor launches be supplied to the line repairers, similar to those supplied for use on the Alberni and Cape Beale line.

Nanaimo and Comox-Campbell River Telegraph Line.—This line has again given the greatest satisfaction to the public. Campbell river, which had been a telephone office was made a telegraph and telephone in November, 1910. A portion of the line between Qualicum and Comox was repoled, a portion still remains to be done. The provincial government have started to change the route of the road in a number of places, and for the quick and proper repair of same, our line will also require to be changed. From February 1 last, the repair of the Parksville-Alberni branch of this line has been placed under our own control, having formerly been attended to by the Canadian Pacific Railway Telegraph Company's line repairers.

Denman and Hornby Island Telephone Line.—This line had very few interruptions during the year and has been of great service to the settlers.

Vancouver, Salt Spring, Pender, Mayne and Galiano Island Telephone Line.—A new cable between Mayne and Galiano Islands was laid giving renewed connection to the latter island settlers, which is appreciated very much, the service maintained over this line has been of a very satisfactory character and since the provision for the appointment of a general line foreman in connection with these and other Gulf islands with a sea-going launch, the lines will be put and kept in a thorough state of repair.

Nanaimo and Gabriola Island Line.—This line continues to give excellent satisfaction to the isolated settlers upon it, and in common with the other islands, will reap a benefit from the improved conditions brought about by the appointment and work of the general line foreman.

Golden and Windermere Telegraph Line.—Considerable resetting of the poles was done on this line, and this work will require to be done yearly until it becomes necessary to repole the whole line as the poles already reset will not bear another resetting.

Victoria and Metchosin Telephone Line.—Operated and maintained by the British Columbia Telephone Company.

Campbell River-Texada Island Telegraph Line.—During the year a line was constructed from Campbell river to Powell river a distance of 39 miles land line and 8½ miles cable by Mr. A. V. Porter, line foreman and a gang of men. Work was started in July and the line completed to Powell river on December 1, and telephone communication at once established. Subsequently a telegraph operator was appointed at Powell river and Campbell river, telephone offices being established at Lund, Cortez island, Mary island and two on Valdez island (Quathiaski Cove) and Heriot bay.

The land line between Blubber bay and Van Anda on Texada Island was also constructed, but on account of a shortage in the cable, connection was not made with Powell river, this stretch of cable when laid will complete the line as originally intended.

The construction of a line to Powell river has given the liveliest satisfaction to the Powell River Pulp and Paper Mills Company, who have invested one and a half million dollars at this point and are employing nearly 1,000 men in their various works, it is expected that the total investments of the company before the works are completed will be over two million dollars. The settlers, &c., at Lund, and on the various islands express very great satisfaction at the prompt construction of the line and the satisfactory service given.

Extension of Nanaimo-Comox Line to Cape Lazo Wireless Station.—Six and a half miles of line was constructed for the purpose of giving land line connection to the wireless station. Complete sets of instruments being installed at Comox and Cape Lazo.

Extension of Victoria-Cape Beale Line to Wireless Station at Gonzales Hill, Oak Bay Municipality, adjoining Victoria.—A line was constructed from the Victoria office to the wireless station a distance of 1½ miles (3 miles wire) to give connection to our land line.

Golden-Windermere Telephone Line.—This line continues to be of great service to the people of Golden, Wilmer, Windermere points along the Columbia river and districts adjacent, there are now twenty-five subscribers for phones, in addition to these supplied to our (5) agents, making a total of thirty phones, ten of these are on our Golden exchange. Applications are now on hand for five additional phones, which is testimony to the popularity and efficiency of the service.

Sidney-Sidney Island Telephone Line.—This line has given very great satisfaction to the firms doing business on Sidney island, and has not been interrupted during the year.

Total Number of Miles of Lines, &c., in Operation at March 31, 1911.

——	Miles.	Land Lines.	Cable.	No. of Offices.	No. of Operators.	No. of Line Repairers.	Messengers.
Victoria—Cape Beale	118	118	.....	6	6	8	1
Alberni—Cape Beale	57	57	.....	2	2	Repairs made by C.P.R. up to 1st Feb., 1911. Two Govt. repairers since that date.	
Alberni—Clayoquot, Main Line	97¾	96¾	1	7	6	4 Govt. 1 C.P.R. latter up to 1 Feb., 1911. All Govt. line reprs. since that date.	
Alberni—Clayoquot, Sechart Branch	9½	9	½	.....	.....	.....	
Alberni — Clayoquot, Mosquito Harbour Branch	10½	10¼	¼	.....	.....	.....	
Alberni—Clayoquot, Clayoquot Sound	11½	11½	.....	.....	.....	.....	
* Nanaimo—Comox	118	118	.....	12	12	3	1
Nanaimo—Comox, Cape Lazo Branch	6	6	.....	.....	.....	Repairs made by C.P.R. up till 1 Feb. Two Govt. repairers since that date.	
Nanaimo — Comox, Parksville — Alberni Branch	30	30	.....	1	1	.....	
* Denman—Hornby, Isd. line	16	14	2	4	4	1	
Golden—Windermere	88	88	.....	5	5	1	
Vancouver Island, Salt Spring, Pender, Mayne and Galiano Islands Telephone line	67	60	7	15	15	Repairs made by local parties	

* Courtney—Campbell River now included. Nanaimo—Comox 82 miles, Courtney—Campbell River 36 miles—Total 118 * Previous report in error.

WM. HENDERSON,
District Superintendent Telegraphs.

REPORT No. 11.—KAMLOOPS-PENTICTON, &c.

SUMMERLAND, B.C., May 13, 1911.

D. H. KEELEY, Esq.,
General Superintendent,
Ottawa, Ont.

DEAR MR. KEELEY,—I have the honour to submit herewith memorandum of transfer of the superintendency of the Kamloops-Penticton telephone line from the undersigned to Mr. J. S. McDonald, general inspector.

You will note the transfer is dated May 1, but owing to Mr. McDonald's absence at the coast on departmental business, the same was not executed until this morning.

I will be glad to have your acknowledgement of this document, at your convenience.

I have the honour to remain,
Faithfully yours,

C. S. STEVENS,
Retiring Superintendent.

MEMORANDUM OF TRANSFER, APRIL 30, OF SUPERINTENDENCY OF THE KAMLOOPS-PENTICTON TELEPHONE LINE FROM C. S. STEVENS TO J. S. MCDONALD, GENERAL INSPECTOR.

Finance.

All matters of finance have been adjusted between this office and the department, all moneys passing through this office having been remitted to the department.

Unfinished Work, authorized by Appropriation of 1910.

All material for the second circuit from Kelowna to Penticton has been purchased and is on the ground, with the exception of the cable for spanning the Okanagan lake at Kelowna, which I have had held in tanks in the east until the time arrives to lay it. All the wire and the insulators for this work are stored with Mr. H. H. Millie, agent at Kelowna. The cross-arms and pins are stored at the following points:—

200	cross-arms	and pins	at Siwash Point.
350	"	"	at Halls' Landing.
450	"	"	with agent, Peachland.
595	"	"	at Summerland.
200	"	"	with agent, Penticton.

No actual work of reconstruction had begun on account of this appropriation.

Work was suspended on the repoling from Kamloops to Lower Nicola on account of the lack of funds, when the work was near to Merritt, leaving about six miles still to rebuild under a new appropriation.

All other work begun last year was completed.

Condition of Lines.

Section 1. Kamloops to Little Fort.—The southerly part of the line from Kamloops to Louis Creek needs a little work in fixing corners and a few light repairs after

the frost is out of the ground. No insulators are on the poles for 9 miles on the northern end of the line.

Section 2. Kamloops to Nicola.—This section is in first-class condition.

Section 3. Nicola to Lower Nicola.—The new work as far as Merritt is in good condition. The six miles of old poles are falling continuously.

Section 4. Nicola to Hedley.—This section is in very poor condition. Poles are falling in all directions. The only relief is in rebuilding. I have applied for funds to be voted this year for this purpose.

Section 5. Hedley to Penticton.—Same as section 4.

Section 6. Penticton to Kelowna.—In good condition.

Section 7. Kelowna to Vernon.—In good condition.

Section 8. Vernon to Lumby.—This section needs repair gang to go over it in the spring for light repairs.

Section 9. Vernon to Kamloops.—In good condition.

Estimates made and Funds asked for.

The following work should be undertaken during the current year:—

Lower Nicola to Canford—construction	$ 750
Kamloops to Walhachin—construction	6,750
Second circuit Kelowna to Penticton—construction	4,000
Nicola to Penticton—rebuilding	16,550
	$28,050

The following persons are upon salary as at the 30th April, 1911:—

	Per month.	
C. S. Stevens, superintendent	$100.	Retiring.
C. Stackhouse, clerk to superintendent	85	"
A. J. Woodburn, foreman	75	"
L. A. Palmer, agent, Kamloops	35	
" messenger allowance	15	
Stevens & Allen, Kamloops, rent	8	
Mrs. M. V. Munro, Nicola, agent	50	
" office rent	10	
G. M. Glemmill, agent, Merritt	50	
I. Eastwood, rent, Merritt	10	
Alex. Bell, agent, Princeton	40	
" rent, Princeton	5	
F. M. Gillespie, agent, Hedley	40	
" rent, Hedley	5	
Mrs. L. H. Layton, agent, Penticton	40	
H. H. Millie, agent, Kelowna	65	
" rent, Kelowna	10	
" messenger, Kelowna	10	
" battery maintenance	5	
Okanagan Telephone Company, agents, Vernon	130	
C. F. Layton, lineman Penticton	75	
A. H. Hayward, lineman, Merritt	50	and expenses.

All other agents are paid 20 per cent commission on their total business on this line (receipts and checks).

Subjoined will be found a full list of the agencies with tariff in effect.

Transfer Points.

Settlement with the Great Northern Railway telegraphs is made between the local agents of each line at Keremeos, while at Vernon and Kamloops our agents take the balance of their accounts between this and other lines to credit or debit (as the case may be) on their balance sheets and settlement is made at Ottawa and Montreal respectively.

Payment of Accounts.

Cheques are issued in payment of all vouchers, when duly certified by the superintendent, from the office of the accountant at New Westminster—the account standing in the names of Messrs. C. N. Macdonald, accountant, and G. A. Keefer, resident engineer.

Stationery.

The offices have been supplied with stationery for the ensuing year and there is a considerable stock on hand, together with an Underwood typewriter and desk, and one fyling cabinet to be taken over by the new superintendent.

The following is a list of agencies now open or to be opened in the near future, with agent's name appended:—

Aitkens, to be opened.
Aspen Grove, G. Gray.
Barnhart Vale, P. Barnhart.
Barrier River, G. Borthwick.
Chinook Cove, to be opened.
Chu Chua, G. Fennell.
Colletts, J. Colletts.
Coutlee, H. S. Cleasby.
Daly, Daly Reduction Co.
Ducks, W. Plum.
Fairview, S. J. McCuddy.
Friskens, J. Frisken.
Gellatlys, D. E. Gellatly.
Geniers, G. Genier.
Grand Prairie, T. Knight, Jr.
Granite Creek, Columbia C. & C. Co.
Guichons, J. Guichon.
Hastings Rch., J. G. Munroe.
Hedley, F. M. Gillespie.
Heffley Creek, A. St. Laurent.
Joseys, F. J. Josey.
Kaleden, A. S. Hatfield
Kamloops, L. A. Palmer.
Kelowna, H. H. Millie.
Keremeos, G. Kirby.
Little Fort, H. Latrimouille.
Louis Creek, A. Goudreau.
Lower Nicola, Mrs. R. M. Woodward.
Lumby, B. Morand.
Marron, Lake, A. S. Parker.
Merritt, G. M. Gemmill.
Moores, E. Wilkinson.
Munros, A. Munro.
McDonalds, W. R. McDonald.
McLeods, W. McLeod.
Nicola, M. V. Munro.
Okanagan Centre, J. A. Gleed.
Okanagan Falls, W. B. Hine.
Otter Valley, J. G. Thynne.
Oyama, F. H. Aldred.
Peachland, C. McDougald.
Penticton, L. H. Layton.
Petersons, J. Bulman.
Princeton, Alex. Bell.
Quilchena, J. A. Guichon.
Richters, Richter & Co.
Rosehill, A. McKay.
Slaholtkan, W. McClounie.
Summerland, N. Tiffen.
Stump Lake, J. Whiteford.
Struthers, R. Struthers.
Tulameen, W. E. Henderson.
Vasseaux Lake, H. McKenzie.
Vernon, Okanagan Tel. Co.
Westbank, W. G. Hewlett.

Dated at Summerland, May 1, 1911, and signed by the retiring superintendent and the general inspector.

C. S. STEVENS,
Retiring Superintendent.

J. S. MACDONALD,
General Inspector.

NOTE.—The foregoing statement from Mr. Stevens, taken in conjunction with his report for 1909-10, which was included in the general report last year, shows the extent and conditions of operation of the lines comprising the Okanagan Valley telephone system.

The new lines that were built under Mr. Stevens' supervision in the course of 1910-11, were an extension of the North Thompson River line beyond Louis Creek to Aitkens, a distance of 31 miles, embracing four new offices, as shown in the tabular statement elsewhere in the present report; and a line across country via Grand

Prairie, extending from Kamloops to Vernon, a distance of 80 miles, with a span of 4 miles, to Ducks. This new line embraces four other intermediate offices, which will be found entered in the tabular statement covering the district.

REPORT No. 12.

VANCOUVER, B.C., May 10, 1911.

D. H. KEELEY, Esq.,
General Superintendent Government Telegraphs,
Ottawa, Ont.

DEAR SIR,—I beg to submit herewith my annual report covering the operation of the Yukon Telegraphs for the year 1910-11.

Main Line, Ashcroft to Boundary.—Very little difficulty was experienced in maintaining through circuit on the main line during the past year, interruptions being frequent, and with few exceptions, of but short duration. The exceptions noted were occasioned by fires along the Yukon river, caused by campers en route to Dawson, and again during February by severe storms that swept the country between Atlin and Dawson. The usual annual general repairs were made by the line foreman and the local lineman, but next season it will be necessary to put special repair gangs to work between Quesnel and Atlin to reset and renew poles that have fallen into decay, and generally overhaul that portion of the line between Atlin and Dawson. Traffic has not increased being about the same as last year, but between Ashcroft and Hazelton there has been a steady increase in revenue and messages.

The anticipated influx of settlers and others into the Fort George, Nechacco and Bulkley districts materialized last summer, and will continue during the coming seasons. Owing to the heavy travel along the Cariboo road, extra stages and motors were put into operation, and it was found necessary for us to open new offices to accommodate customers. Twelve telephones were installed at various points between Ashcroft and Quesnel, and attached to the local telegraph wire, being operated on the Railway Composite Telegraph-Telephone system, supplied by the Western Electric Company. This service has given excellent results. Howlers instead of bells being used, eliminate the chatter of the relay, which was the objectionable feature of the old system. Considerable repair work will be necessary along the Cariboo section next season to put the lines in condition to handle the heavy traffic which is offering and which will increase as the season progresses.

Horse Fly Branch.—Ordinary repairs by local linemen, and two weeks labour by a couple of extra men sufficed to keep this line in order during the year. Business is about the same as last year, there being no new developments in the district to excite traffic.

Barkerville Branch, Quesnel to Barkerville.—No repair work, other than local, was undertaken on this branch last season, and an overhauling will be necessary this year. the business has increased, and with the rapid population of the Fort George district and the near approach of railway construction, an improvement in prospects is noticeable.

Lillooet Branch.—Only slight repairs were required on this line last season, and it is not proposed to do more than employ a few men for a week or two in resetting poles, as on the whole the line is in fair condition. The presence of railway survey outfits in the vicinity of Lillooet is taken as an indication that railway work will soon be in progress, and in consequence considerable telegraph revenue will accrue to this line. The traffic last year was slightly in excess of the preceding year.

Livingstone Branch Telephone.—Traffic on this line during the past year has been normal, and the prospects for an increase are not bright, the line is in good order, and no special repairs were necessary.

Hazelton-Prince Rupert.—With the completion of the Grand Trunk Pacific railway for the first hundred miles out of Prince Rupert, interruptions incident to railway construction work practically ceased, and it was possible to reduce the staff and close several of the offices that were opened to take care of interruptions and effect quick repairs. On the second hundred miles, offices were opened at several railway camps, but owing to the favourable nature of the country and timber, interruptions were less frequent, and were easily taken care of, and the line kept in working order by the staff employed, with scarcely any perceptible delay to business. The traffic on this branch has increased immensely and the prospects for next season are better than last, Hazelton has become an important telegraph point, and the surrounding district is growing rapidly, new mining properties in the immediate vicinity are being developed and a heavy local telegraph business for the coming year is assured.

Port Simpson Branch.—This line has given very little trouble in the matter of interruptions, and traffic is steady. Phones were placed in the Port Simpson hospital at Port Simpson, and in the residence of the hospital physician at Prince Rupert, also in the office of the Georgetown Sawmill Company at Prince Rupert and at Georgetown. These phones are on a rental basis of $2.50 per month. This line is also operated as a Composite Telegraph-Telephone line.

Stewart Branch.—Construction of this line, 150 miles from Kitsum Kalum to Stewart via Kitsum Kalum lake, Naas river and Portland canal, was begun in September, with two gangs operating from Kitsum Kalum and Stewart respectively. The work was prosecuted with vigour, but owing to early snowfall on the summits, the work was suspended on November 25, after about 70 miles had been built, work will be resumed as soon as conditions permit and the line should be completed and in operation by July 1, 1911.

Yours truly,

J. T. PHELAN.
Superintendent.

YUKON TELEGRAPHS.

ASHCROFT-DAWSON, MAIN LINE.

Comparative Statement of Revenue, for the Years ending March 31, 1910, and March 31, 1911.

Offices.	Fiscal Year 1909-1910.			Fiscal Year 1910-1911.			Summary.					
							Messages.				Revenue.	
	Messages.			Messages.		Revenue.	Increase.		Decrease.		Increase.	Decrease.
	Sent.	Rec'd.	$ cts.	Sent.	Rec'd.	$ cts.	Sent.	Rec'd.	Sent.	Rec'd.	$ cts.	$ cts.
Ashcroft, B.C.	18,252	21,438	23,372 29	24,996	30,251	25,352 25	6,744	8,813	.....	.....	1,979 96	
Alexandria, B.C.	179	107	57 86	111	76	32 11	.....	.....	68	31	.....	25 75
Aldermere, B.C.	709	721	787 92	1,027	915	1,326 82	318	194	.....	.....	538 90	
Atlin, B.C.	780	649	2,064 56	622	476	1,609 81	.....	.....	158	173	.....	454 75
Big Salmon, Y.T.	30	16	33 21	7	8	2 50	.....	.....	23	8	.....	30 71
Blackwater, B.C.	159	101	195 16	1,253	1,072	553 54	1094	971	.....	.....	358 38	
Bobtail Lake, B.C.	95	66	87 11	77	50	82 53	.....	.....	18	16	.....	4 58
Bonaparte, B.C.	114	121	41 31	97	65	32 54	.....	.....	17	56	.....	8 77
Boundary, Y.T.	2,156	2,037	.....	1,619	1,235	.....	.....	.....	537	802	.....	
Burns' Lake, B.C.	73	76	55 91	91	84	98 13	18	8	.....	.....	42 22	
Carcross, Y.T.	336	317	484 61	312	286	544 67	.....	.....	24	31	60 06	
Clinton, B.C.	1,081	962	476 17	1,671	1,431	750 21	590	469	.....	.....	274 04	
Coffee Creek, Y.T.	47	38	61 27	17	14	30 21	.....	.....	30	24	.....	31 06
Conrad, Y.T.	60	72	184 83	.....	.....	.....	.....	.....	60	72	.....	184 83
Dawson, Y.T.	5,669	5,490	28,009 42	5,653	5,361	28,205 17	.....	.....	16	129	195 75	
Echo Lake, B.C.	3	4	1 93	6	5	5 51	3	1	.....	.....	3 58	
Eighth Cabin, B.C.	3	2	2 48	.....	.....	.....	.....	.....	3	2	.....	2 48
Fifth Cabin, B.C.	7	4	4 90	14	9	85	7	5	.....	.....	.....	4 05
Fort Selkirk, Y.T.	155	137	209 46	144	125	196 04	.....	.....	11	12	.....	13 42
Forty Mile, Y.T.	477	308	567 92	336	218	431 78	.....	.....	141	90	.....	136 14
Fourth Cabin, B.C.	6	0	5 05	13	13	2 66	7	13	.....	.....	.....	2 39
Fraser Lake, B.C.	364	331	462 74	391	378	457 01	27	47	.....	.....	.....	5 73
Glentanna, B.C.	53	41	53 08	30	13	62 78	.....	.....	23	28	9 70	
Hazelton, B.C.	2,858	3,279	3,964 52	5,645	5,962	8,045 24	2,787	2,683	.....	.....	4,080 72	
Hootalinqua, Y.T.	100	61	114 87	92	51	101 02	.....	.....	8	10	.....	13 85

Iskoot, B.C.	3	3	7 34	7	4	14 65	4	1			7 31	
Kispiox, B.C.	42	41	56 08	44	57	29 20	2	16				26 88
Lower Laberge, Y.T.	88	70	94 42	89	72	84 14	1	2				10 28
Lyne's, B.C.				73	50	49 72	73	50			49 72	
Moffats', B.C.				51	57	32 65	51	57			32 65	
Moricetown, B.C.	80	36	53 30	64	48	43 55		12	16			9 75
Nahlin, B.C.	17	8	29 12	6	8	2 57			11			26 55
Nakina, B.C.	3	3	8 66	6	2	1 00	3			1		7 66
Nechaceo, B.C.	281	278	315 79	267	273	347 27			14	5	31 48	
Ninth Cabin, B.C.	3	3	4 45	6	2	5 66	3			1	1 21	
Ogilvie, Y.T.	35	15	21 24	12	10	4 05			23	5		17 19
59 Mile House, B.C.				41	37	23 05	41	37			23 05	
70 " "	72	44	22 69	257	171	94 12	185	127			71 43	
74 " "				42	26	35 03	42	26			35 03	
83 " "	119	115	41 92	242	192	87 49	123	77			45 57	
100 " "				46	40	33 39	46	40			33 39	
105 " "				75	45	54 67	75	45			54 67	
115 " "	408	323	166 57	576	372	278 77	168	49			112 20	
134 " "				65	50	35 18	65	50			35 18	
141 " "				71	73	40 49	71	73			40 49	
150 " "	1,223	1,115	769 12	1,719	1,700	1,049 56	496	585			280 44	
Quesnel, B.C.	1,779	1,739	1,578 23	3,719	3,642	3,747 60	1,940	1.903			2,169 37	
Second Cabin, B.C.	4	3	3 18	6	3	3 94	2				76	
Seventh Cabin, B.C.		2		1	2	25	1				25	
Sixth Cabin, B.C.	2	0	60	4	2	31	2	2				29
Shepherds', B.C.				1	2		1	2				
Shesley, B.C.	8	3	1 00	7	8	1 00		5	1			
Soda Creek, B.C.	632	538	266 56	1,733	1,382	991 22	1,101	844			724 66	
South Bulkley, B.C.	76	90	139 38	90	83	94 73	14			7		44 65
Stewart River, Y.T.	111	78	151 07	99	55	108 11			12	23		42 96
Tagish, Y.T.	11	4	10 04	11	4	14 32					4 28	
Tantalus, Y.T.				39	37	77 50	39	37			77 50	
Telegraph Creek, B.C.	163	194	496 19	182	215	472 76	19	21				23 43
Telkwa, B.C.	476	440	660 05	461	416	664 80			15	24	4 75	
Third Cabin, B.C.	6	6	10 08	8	7	1 60	2	1				8 48
25 Mile Cabin, B.C.	2	1	15 68	4	1	7 53	2					8 15
Upper Laberge, Y.T.	7	2	65						7	2		65
Windts', B.C.				28	19	12 43	28	19			12 43	
White Horse, Y.T.	1,753	1,836	3,555 55	1,643	1,676	3,701 07			110	160	145 52	
Yorston's, B.C.				39	30	25 83	39	30			25 83	
Yukon Crossing, Y.T.	153	114	137 03	88	101	124 03			65	13		13 00
Totals	41,323	43,482	69,914 57	56,146	59,072	80,318 62	16,234	17,315	1,411	1,725	11,562 48	1,158 43

YUKON TELEGRAPHS.

HAZELTON—PRINCE RUPERT BRANCH.

COMPARATIVE STATEMENT of Revenue, for the Years ending March 31, 1910, and March 31, 1911—*Continued.*

Offices.	Fiscal Year 1909–1910.			Fiscal Year 1910–1911.			Summary.					
	Messages.			Messages.		Revenue.	Messages.				Revenue.	
							Increase.		Decrease.		Increase.	Decrease.
	Sent.	Rec'd.	$ cts.	Sent.	Rec'd.	$ cts.	Sent.	Rec'd.	Sent.	Rec'd.	$ cts.	$ cts.
Aberdeen, B.C.	966	1,065	1,424 43	788	798	1,061 06			178	267		363 37
Andimaul, B.C.	162	117	120 08	465	295	388 80	303	178			268 72	
Batemans, B.C.	237	180	109 09	16	15	8 79			221	165		100 30
Bostrom's, B.C.	39	24	28 85	364	242	249 39	325	218			220 54	
Cassiar, B.C.	70	64	123 23	61	58	94 13			9	6		29 10
Clearwater, B.C.	326	223	181 17	217	124	104 74			109	99		76 43
Copper River, B.C.	379	289	248 84	335	231	201 38			44	58		47 46
Digby Island, B.C.				331	178		331	178				
Georgetown, B.C.	5	4	26 49	43	40	107 13	38	36			80 64	
Graveyard Point, B.C.	333	217	196 84	258	139	132 31			75	78		64 53
Hardscrable, B.C.				481	446	345 27	481	446			345 27	
Hole-in-Wall, B.C.	359	238	237 32	386	211	215 46	27			27		21 86
Inverness, B.C.	82	85	82 26	100	83	152 66	18			2	70 40	
Kitselas, B.C.	1,859	1,324	1,589 98	3,375	2,501	2,420 90	1,516	1,177			830 92	
Kitsum Kalum, B.C.	633	554	376 53	834	587	416 79	201	33			40 26	
Lorne Creek, B.C.	207	102	80 46	266	222	169 21	59	120			88 75	
McHugh's, B.C.				149	104	130 84	149	104			130 84	
McLeod's, B.C.	12	8	10 59	78	24	32 54	66	16			21 95	
Meanskinisht, B.C.	123	122	46 05	278	224	167 71	155	102			121 66	
North Pacific, B.C.	36	32	41 78	83	51	160 60	47	19			118 82	
Port Simpson, B.C.	700	566	761 54	689	548	692 51			11	18		69 03
Prince Rupert, B.C.	10,349	9,915	18,971 74	17,312	17,359	27,565 60	6,963	7,444			8,593 86	
Salvus Camp, B.C.	89	41	37 05						89	41		37 05
Sheady's, B.C.				206	150	153 27	206	150			153 27	
Telegraph Point, B.C.	212	124	94 23	118	75	73 06			94	49		21 17
Totals	17,178	15,294	24,788 55	27,233	24,705	35,044 15	10,885	10,221	830	810	11,085 90	830 30

BARKERVILLE BRANCH.

Barkerville, B.C.	918	1,022	1,172 99	1,275	1,302	1,300 96	357	280	.....	.....	127 97	
Cottonwood, B.C.	171	184	78 30	127	144	59 04	.....	.....	44	40	.....	19 26
Locke's, B.C.	67	68	18 35	77	92	23 47	10	24	.....	.....	5 12	
Stanley, B.C.	150	119	105 07	450	302	346 74	300	183	.....	.....	241 67	
Wingdam, B.C.	116	92	35 90	242	216	146 10	126	124	.....	.....	110 20	
Totals	1,422	1,485	1,410 61	2,171	2,056	1,876 31	793	611	44	40	484 96	19 26

HORSEFLY BRANCH.

Harper's Camp, B.C.	111	100	72 02	189	161	116 89	78	61	.....	.....	44 87	
Hydraulic, B.C.	143	121	119 45	698	610	577 28	555	489	.....	.....	457 83	
Quesnel Forks, B.C.	586	468	467 49	270	280	128 59	.....	.....	316	188	.....	338 90
Totals	840	689	658 96	1,157	1,051	822 76	633	550	316	188	502 70	338 90

LILLOOET BRANCH.

Lillooet, B.C.	449	490	382 25	533	578	387 54	84	88	.....	.....	5 29	
Pavilion, B.C.	56	54	32 08	87	58	48 20	31	4	.....	.....	16 12	
Totals	505	544	414 33	620	636	435 74	115	92	.....	.....	21 41	

LIVINGSTONE CREEK BRANCH.

Livingstone Creek, Y.T.	80	67	147 41	51	33	76 70	.....	.....	29	34	.....	70 71
Mason's Landing, Y.T.	7	3	5 90	1	1	.....	.....	.....	6	2	.....	5 90
Totals	87	70	153 31	52	34	76 70	.....	.....	35	36	.....	76 61

SUMMARY—MAIN LINE.

Net Increase—Messages	'Sent'	14,823
" "	'Received'	15,590
" Revenue		$10,404.05

SUMMARY—HAZELTON-PRINCE RUPERT BRANCH.

Net Increase—Messages	'Sent'	10,055
" "	'Received'	9,411
" Revenue		$10,255.60

SUMMARY—BARKERVILLE BRANCH.

Net Increase—Messages	'Sent'	749
" "	'Received'	571
" Revenue		$465.70

SUMMARY—HORSEFLY BRANCH.

Net Increase—Messages	'Sent'	317
" "	'Received'	362
" Revenue		$163.80

SUMMARY—LILLOOET BRANCH.

Net Increase—Messages	'Sent'	115
" "	'Received'	92
" Revenue		$21.41

SUMMARY—LIVINGSTONE CREEK BRANCH.

Net Decrease—Messages	'Sent'	35
" "	'Received'	36
" Revenue		$76.61

GENERAL SUMMARY, 1910-1911.

Main Line and all Branches.

Number messages 'Sent,' year ending March 31, 1911	87,379
" 'Received' " "	87,554
Revenue, year ending March 31, 1911	$118,574.28
Net Increase over preceding year—Messages 'Sent'	26,024
" " " 'Received'	25,990
" " Revenue	$21,233.95

J. T. PHELAN,
Superintendent.

REPORT No. 13.

CABLE SHIP *TYRIAN*.

North Sydney, C.B., N.S., February 20, 1911.

D. H. Keeley, Esq.,
General Superintendent,
Ottawa, Ont.

Dear Sir,—In addition to the separate reports sent you on the completion of each repair, and the laying of new cables, the following is a summary of the work done by the cable ship *Tyrian*, during the season of 1910.

April 1.—Ship went in commission.
April 9.—Left Halifax for repair of Magdalen Island cable.
April 10.—Arrived at North Sydney.
April 11.—Picked up the electrician.
April 12.—Took in stores.
April 14.—Sailed for cable repair.
April 15.—Completed repair (broken off Meat Cove landing).
April 16.—Proceeded to North Sydney.
April 21.—Bunkered the ship and sailed to repair S.W. Point cable.
April 23.—Arrived and effected repair at S.W. Point.
April 24.—Anchored inside Sand Point light, Gaspé. Harbour and basin still frozen over.
April 25.—Sailed to repair Crane Island-Montmagny cable.
April 27.—Arrived and anchored off Crane Island wharf.
April 28.—Started work on cable repair.
May 2.—Completed repair (cable broken by ice).
May 3.—Went to Quebec.
May 4.—Took aboard supplies.
May 5.—Proceeded to Isle Reaux to repair cable.
May 7.—Finished repair (ice crush). Steamed back to Quebec.
May 8 to 14.—Overhauling cable aboard ship.
May 15 to 25.—Repairing original cable and laying new one at L'Ange Gardien.
May 26 to 28.—Picking up remnant of Baie St. Paul cable.
May 29.—Went to Quebec.
June 14.—Took aboard provisions.
June 15.—Moved down to Isle Reaux to lay new cable from St. François, Isle Orléans, to Grosse Isle.
June 25.—Completed work and returned to Quebec.
June 28 and 29.—Removing leak telephone cable, L'Ange Gardien.
July 7.—Trenched all the cables at low water, L'Ange Gardien.
July 11.—Moved down to Crane Island and put in switch for the Signal Service office on the wharf.
July 12.—Arrived at Gaspé.
July 13.—Took aboard poles and sailed for Magdalen islands.
July 14 to 16.—Laid new cable, Amherst harbour to Entry island.
July 17.—Arrived at North Sydney.
July 18.—Bunkered the ship.

July 19.—Took in stores and sailed to lay a new cable from Coffin island to Liverpool, N.S.

July 20.—Arrived at Liverpool.

July 21.—Laid cable to Coffin island and sailed for Halifax.

July 22.—Arrived at Halifax.

August 8.—After undergoing annual cleaning and painting, sailed for repair of Port Hood Island cable.

August 9.—Arrived at Port Hood.

August 10 to 12.—Repaired cable (ice crush).

August 13.—Arrived at North Sydney.

August 20.—Went to Seatari and Canso with superintendent of life boats.

August 21.—Back to North Sydney.

September 15.—Shipped thirteen reels of cable to British Columbia.

September 16.—Took in stores, water and coal; sailed for Big Bras D'Or to repair cable.

September 16 to 20.—Repairing cable.

September 21.—Arrived back at North Sydney.

September 25.—Sailed for Bay St. Lawrence to land coal for station.

September 26.—Landed coal and arrived back at North Sydney.

October 14.—Received orders to lay two cables to Partridge island; also connect Gannet Rock with the two Wood islands and Grand Manan.

October 15.—Took in supplies and water.

October 17.—Sailed for St. John, N.B.

October 19.—Arrived at St. John.

October 20 to 24.—Laying two cables from Partridge island to Fort Dufferin.

October 25 and 26.—Taking aboard supplies for Gannet Rock connection.

October 27.—Went to Seal Cove, Grand Manan.

October 28 to November 3.—Laying three cables and building land line connections from Seal Cove to Gannet Rock.

November 4.—Steamed over to Welchpool to repair Deer Island cable and remove leak from Grand Manan cable.

November 7 to 9.—Repairing Grand Manan cable.

November 10.—Repaired Deer Island-Wilson Beach cable.

November 11.—Sailed for Woods Harbour, N.S.

November 12.—Made survey for proposed cable. Seal island to Woods harbour.

November 15.—Arrived at North Sydney and bunkered ship.

November 19.—Installed new telephones at St. Paul island, Entry island and Amherst harbour.

November 20.—Arrived at North Sydney.

DIFFERENT LENGTHS OF CABLE HANDLED.

		Deep Sea Cable.	Knots.	Knots.
April	16	Aboard since 1909	.....	18.56
April	16	Repair Magdalen Island cable	.....	.....
		Picked up	.....	.71
		Laid down	.86	
May	2	Crane Island cable, picked up	.....	1.00
May	2	" Laid down	2.30	
May	18	L'Ange Gardien cable, laid down	.02	
May	18	" new cable	.75	
May	28	Baie St. Paul cable, picked up	.....	28.31
June	18	St. Francois—Isle Reaux, laid, new cable	2.24	
June	23	Isle Reaux—Grosse Isle, laid, new cable	1.88	
July	15	Entry Island—Amherst, laid, new cable	6.77	
July	21	Coffin Island—Liverpool, new cable	.80	
Aug.	12	Port Hood Island repair (No D.S. used)		
Sept.	15	Shipped to British Columbia	16.66	
Sept.	20	Big Bras D'Or repair (no D.S. used)		
Oct.	21	Partridge Island—Fort Dufferin	.77	
Oct.	25	Partridge Island—Fort Dufferin	.71	
Oct.	28	Seal Cove—Big Wood Island, new cable	1.38	
Oct.	31	Gannet Rock—Little Wood Island, new cable	7.21	
Nov.	1	L. W. Island to B. W. Island, new cable	.55	
Nov.	9	Grand Manan repair, picked up	.....	1.19
Nov.	9	" laid down	1.28	
Nov.	10	Deer Island repair, laid down	.05	
Dec.	19	Shipped to British Columbia	.10	
Dec.	31	Condemned and stripped during season	1.00	
Dec.	31	Left in tanks	4.44	
			49.77	49.77
		Shore End Cable.		
April	15	In tank since 1909	.....	1.38
April	15	Laid Magdalen Island cable repair	.03	
May	22	Picked up Baie St. Paul cable	.....	.24
June	17	Laid Isle Reaux—St. Francois	.08	
June	23	Laid Isle Reaux—Grosse Isle	.12	
June	29	Laid L'Ange Gardien	.05	
Sept.	20	Laid Big Bras D'Or	.04	
Oct.	31	Laid Gannet Rock	.06	
Dec.	31	Left in tank	1.24	
			1.62	1.62

I have the honour to be, sir,
Yours faithfully,

A. B. McDONALD,
General Inspector.

PART VI

REPORT OF THE COLLECTOR OF REVENUE

DEPARTMENT OF PUBLIC WORKS

1910-11

OTTAWA, 12th July, 1911.

The Secretary,
Dept. Public Works, Ottawa.

SIR,—I have the honour of submitting my report for the twelve months ended 31st March, 1911.

During the twelve months just closed, the revenue accrued from public works shows a decrease of $11,064.49, being $174,426.59, while in the preceding year it was $185,491.08.

The collections show an increase of $32,775.89, being $195,398.62, while in 1909-10 they amounted to $162,622.73.

The revenue accrued from slides and booms was $92,472.66 or $1,167.49 less than for year ended 31st March, 1910.

The collections were $114,870.16, or $43,202.96 more than the previous year.

The outstanding uncollected revenue from slides and booms was decreased by $29,259.12.

The graving docks yielded $42,876.09 or $2,940.84 less than in 1909-10.

Rents collected amounted to $37,652.37, a decrease of $7,486.24.

Having dealt with the revenue in a general way, I now submit the particulars, in detail, relative to the several services under their respective heads.

SLIDES AND BOOMS.

OTTAWA DISTRICT.

The tolls charged up amounted to $40,136.34 or $1,507.51 less than in 1909-10.

The number of saw logs that passed through the works was 4,796,970 or 289,283 pieces more than the previous year.

Of square timber there were only 239 pieces.

Of the revenue accrued during the year all but $36.11 was collected.

Of the dues accrued since July 1, 1889, when this department took over the collection, there remains uncollected $8,296.93, full particulars of which will be found in Statement No. 2 herewith.

Of the dues accrued before July 1, 1889, there still remains $56,805.65, all of which should be written off. See statements Nos. 1 and 3 herewith for particulars.

The accounts for the Ottawa District stand thus:—

Dues accrued during the year to 31st March, 1911	$40,136 34
Outstanding 31st March, 1910	25,079 00
	$65,215 34
Collected	52,347 31
	12,868 03
Written off	4,571 10
Balance outstanding 31st March, 1911	$ 8,296 93

Being composed of—

Dues of 1889-90	$ 6,903	05
" 1890-91	28	42
" 1892-93	379	80
" 1896-97	196	71
" 1903-04	637	37
" 1907-08	67	41
" 1909-10	48	06
" 1910-11	36	11
	$ 8,296	93

Balance of dues outstanding prior to 1st July, 1889, when this Department took over the collection $56,805 65

Herewith are statements in detail.

No. 1.—Statement of amounts outstanding prior to 1st July, 1889, uncollected 31st March, 1911.

No. 2.—Statement of dues accrued at Ottawa since 1st July, 1889, uncollected 31st March, 1911.

No. 3.—Statement of dues accrued at Quebec prior to July 1st, 1889, uncollected 31st March, 1911.

No. 4.—Statement of the number of pieces of square timber, saw-logs, &c., which passed through the Ottawa works during the year ended 31st March, 1911.

No. 5.—Statement of dues accrued from each of the slides and works in the Ottawa district during the year ended 31st March, 1911.

Apart from two small accounts amounting to $104.13, all the Revenue from the Ottawa Slides and Booms, since I took charge in 1889, has been collected, excepting such as should have been written off long ago or a few items in dispute which I expect will have to be forgiven.

I have much pleasure in noting that the Cheneaux Boomage question was taken up and settled during the past year, all arrears to 31st March, 1909, were paid up and the rate reduced from 3c. to 2c. per 1,000 feet B.M. from 1st April, 1908, which settlement was satisfactory to all concerned.

That last year, some 289,283 more saw logs passed through the works than in 1909, and that the Revenue accrued should be $1,167.49 less than in the latter year, seems to require explanation. The cause is not only the constant decrease in the size of the pine logs but, owing to the two large paper mills here, an increase in the output of spruce for pulp—all of which, 8 inches and under, is computed by the cord or cubic contents, while all 9 inches and upwards is classed as saw logs, and as very little of the latter goes over 12 inches their B.M. contents do not figure very much per piece.

ST. MAURICE DISTRICT.

The revenue accrued from this district was $45,472.18, being $1,859.84 less than in 1909-10.

The collections amounted to $52,314.00; $15,533.42 more than 1909-10.

Uncollected of 1909-10, Dues $3,709.62.

The amount outstanding prior to 1st July, 1892, remains unchanged, viz., $14,-481.49, and should be written off for reasons assigned in Statement No. 6 herewith.

The number of pieces of all kinds of timber that passed through the works was equivalent to 5,439,171 pulp and saw logs or 522,154 pieces more than the previous year.

Here, as in the Ottawa accounts, appears a seeming contradiction, for, although the number of saw logs, &c., which passed through the works was 522,154 pieces more than in 1909-10, the revenue accrued was $1,859.84 less.

The reason for the apparent discrepancy was that, the actual number of logs brought down to Three Rivers, the rate being 2½c. per piece, was less than in the preceding year, while the logs brought to Grand Mère and Shawinigan, where the rates are 1c. and 1½c. respectively, were greater than in 1909-10—but the increase in the quantities at the smaller rates was not sufficient to overcome the falling off at Three Rivers.

The summer of 1910 was unusually favourable to lumbering on the St. Maurice, for the last logs were sorted out at Three Rivers on the 1st October, being a full month sooner than usual.

As a very large number of logs were left in the tributaries at the end of the season, I look for a substantial revenue this year.

In consequence of the prohibitory policy of the Quebec Government, The Grés Falls Co., which formerly shipped very large quantities of pulp wood, have in operation a pulp mill at Pointe à Magdelaine on the east side of the St. Maurice, which will in all probability be enlarged to double its present capacity. The Wayagamac Pulp and Paper Co., who purchased the Alex. Baptist business, are also erecting mills at Baptist's Island and it is generally understood that another large milling concern is looking for a convenient site for the manufacture of pulp to supply their American Paper Mills—so that, unless all signs fail, the Revenue from the St. Maurice works will in all probability keep well up to, if it does not exceed, $45,000 per annum.

NEWCASTLE DISTRICT.

The dues accrued from this district amounted to $1,944.70, being $368.76 more than the previous year, all collected.

The tolls outstanding on 31st March, 1911, amounted to $3,556.99, of which $3,521.19 should be written off in accordance with a judgment in the Exchequer Court: $35.70 will also have to be forgiven, the debtor being a very old man and hopelessly insolvent.

Full particulars of amount outstanding will be found in Statement No. 7, herewith.

SAGUENAY DISTRICT.

The dues accrued during the year ended 31st March last amounted to $4,919.44, all paid.

All the arrears due at end of last Fiscal Year were settled and paid up.

GRAVING DOCKS.

ESQUIMALT GRAVING DOCK.

The revenue from this service was $20,303.13, being $7,726.49 more than the previous year. (See Statement No. 8), of the 152 days the dock was occupied during the year it was used for 33 days by H. M. vessels. The total number of vessels docked was 19 of 59,558 tons.

LEVIS GRAVING DOCK.

The revenue was $1,743.09 more than for the year 1909-10, being $20,495.03. (See Statement No. 9.)

During the season of navigation the dock was occupied for 145 days by 11 vessels of 18,378-20 tons.

During the winter of 1910-11 it was occupied by Str. 'Tadousac,' Dredge 'International" and Caisson for Quebec bridge.

While this dock is of a sufficient length and width to accommodate many vessels of the larger class, it is unfortunate that the entrance is so narrow (60 feet). In consequence, many dockages that would yield large returns, are lost.

KINGSTON GRAVING DOCK.

This dock was occupied for 20 days of the month of April, 1910. The revenue was $2,077.93.

Five vessels of 4,444 tons were docked during this term. (See statement No. 10 for particulars).

On the 1st May, 1910, The Kingston Shipbuilding Co., took possession of the dock under lease, the rental for which, $10,000 per annum, was payable at the end of each year—consequently as the first year ended 30th April, 1911, no revenue but the $2,077.93 above noted came to hand during the Financial Year ended 31st March, 1911.

Although during the preceding fiscal year the revenue was $14,488.84 nevertheless a clear rental of $10,000 is a much better result inasmuch as there are no charges for staff and maintenance to be taken from it, whereas in former years the charges under these heads amounted to a very considerable proportion of the revenue—in some years exceeding it.

RENT.

With regard to the collection of the rentals under leases granted by this Department, which was formerly done by the Inland Revenue Department,—

Statements Nos. 11 and 12 show in detail the condition on March 31, 1911, of the accounts taken over on March 31, 1909, from the Inland Revenue Department.

Statement No. 13 shows condition of land sales and interest account, also from Inland Revenue Department, which show no change for many years.

Several of the unsettled accounts are of many year's standing, some are under investigation, and others I expect will have to be written off for good and sufficient reasons.

Exclusive of the above mentioned rentals, the revenue from government properties has become an important item, being in 1910-11 $37,593.65 or $5,521.86 less than in 1909-10.

Of this sum $33,981.03 was collected, $1,148.21 written off, in lieu of repairs or on account of poverty, and $2,464.41 was outstanding at the close of the year. Of the latter item, I may say that a considerable amount will be recovered, but just how much I am unable at this writing to estimate; when, however, it is considered that many of the properties upon which almost all outstanding rents have accrued were old and mainly sought for by people who could not pay large rents, and as the amount uncollected is but about 7 per cent of the whole, the sum is not so very large. nevertheless this branch (the collection of rents) alone is the most troublesome and unsatisfactory part of the duties of this office.

As most of the building on the Sussex street property have been demolished, many before the 31st March last, the revenue from this property will be but a small item during the current year.

The collections on account of rent were as follows:

STATEMENT OF RENTS COLLECTED, PUBLIC WORKS REVENUE, DURING YEAR ENDED 31ST MARCH, 1911.

Old Post Office Building, Victoria. B.C.	$ 6,335 00
Sussex Street Property.	15,295 52
Examining Warehouse Site, Montreal P.Q.	1,631 00
Portion Graving Dock Premises, Kingston, Ont.	187 50
Part ReserveVictoria Island, Ottawa.	2 00

Reserve East Side, St. Maurice River	$ 30 00
Postal Station Site, Montreal, P.Q.	194 95
Privilege of erecting towers on Burlington Beach	1 00
Island and Water Power, Calumet Channel, P.Q.	25,00
Part Reserve, Pond Creek	7 50
Part Reserve West Side, Black River, P.Q.	25 00
Ile Caron, P.Q.	75 00
Part Ile St. Christophe	50 00
Land on Columbia and Begbie Strets, Westminster, B.C. (Interest)	750 00
Sand Privileges, Burlington Beach Canal	100 00
Old Government House, Yale, B.C.	5 00
Privilege Water Pipe Connection, William Head, B.C	12 00
Examining Warehouse Site, Vancouver, B.C	600 00
Kingston, Ont., Land on Clarence Street	1 00
Privilege of laying tracks on bridge near Edmonton	1 00
Part Carrier Lainé Property, Levis, Que.	240 00
Part Graving Dock Premises, Levis Que	1 00
Canal Feeder, Catherinestown, P.Q.	1 00
Public Building Site, Seaforth, Ont.	73 13
" " Mount Forest, Ont.	45 00
" " Waterloo, Ont.	43 71
" " Tilsonburg, Ont.	100 00
" " Chesley, Ont.	41 82
" " Sudbury, Ont.	225 00
" " Listowel, Ont.	40 00
" " Fergus, Ont.	6 00
Court House, Regina, Saskatchewan	3,300 00
Sheriff's Office, Regina, Saskatchewan	1,764 00
Land Titles Office, Prince Albert, Saskatchewan	900 00
Land Titles Office, Edmonton, Alta	880 00
Court House, Red Deer, Alta.	150 00
Old Examining Warehouse, Winnipeg	20 00
Post Office Building, Winnipeg	441 00
Latchford Dam	109 90
Piece of Land, Ottawa Street, Ottawa	2 00
Water Lot in Port Morien Harbour, N.S.	1 00
House at Observatory, Ottawa	175 00
Piece of land shore of Kennebecasis River, N.B.	10 00
Part Hospital Site St. James Street, Montreal	62 00
Privilege of making openings in Post Office Fence, Smith Falls	1 00
Hydraulic Rents, (formerly Inland Revenue Department)	3,562 00
Minor Public Works, " " " "	109 34
	$ 37,652 37

The following comparative table of Public Works Revenue accrued during the year ended 31st March, 1911, compared with that of the fiscal year ended March 31, 1910, shows at a glance on what accounts increases and decreases herein reported have occurred:—

—	Year ended March 31, 1911.	Year ended March 31, 1910.	Increase 1911.	Decrease 1911.
Slides and Booms.	$ cts.	$ cts.	$ cts.	$ cts.
Ottawa District	40,136 34	41,643 85	.....	1,507 51
St. Maurice District	45,472 18	47,332 02	.....	1,859 84
Newcastle District	1,944 70	1,575 94	368 76	
Saguenay District	4,919 44	3,088 34	1,831 10	
	92,472 66	93,640 15	2,199 86	3,367 35
Net decrease, $1,167.49.				
Graving Docks.				
Esquimalt, B.C.	20,303 13	12,576 64	7,726 49	
Kingston, Ont.	2,077 93	14,488 84	.....	12,410 91
Levis, Que.	20,495 03	18,751 44	1,743 59	
	42,876 09	45,816 92	9,470 08	12,410 91
Net decrease, $2,940.00.				
Rents.				
Hydraulic rents	3,680 00	3,977 00	.....	297 00
Minor public works	109 34	126 00	.....	16 66
Other public properties	35,288 50	41,931 01	.....	6,642 51
	39,077 84	46,034 01	.....	6,956 17

The gross collections during the year were as follows:—

Of slide and boom dues	114,870 16
Of graving dock dues	42,876 09
Of rents	37,652 37
	$ 195,398 62

In conclusion I have to acknowledge the uniform courtesy and cheerful assistance accorded me at all times by the officers of the department with whom I have been brought in contact during the year.

I have the honour to be,

Your obedient servant,

EDW. T. SMITH,

Collector of Public Works Revenue.

No. 1.—Statement of Slidage and Boomage from the Ottawa Slides and Works, accrued prior to July 1, 1889, Outstanding March 31, 1911.

By whom due.	Bad and Doubtful Debts.	Chaudiere Boomage in Suspense.	Other Slide and Boom Dues Disputed.	Total Outstanding on Sept. 30, 1902.	Years to which Dues belong.	Remarks.
	cts.	$ cts.	$ cts.	$ cts.		
John & Wm. McLean	53 14			53 14	1873	Insolvent.
John Rowan	342 50			342 50	1872–1873	"
Lemieux & Charette	21 30			21 30	1873	"
Taillon & Lapierre	148 10			148 10	1873–1874	"
Mosgrove & McHarry	261 42			261 42	1873–1874	"
W. C. Wells	600 90			600 90	1873–1874	"
Dufresne & McGarity	528 80			528 80	1874–1875	"
Walton Smith	171 46			171 46	1874–1875	"
A. H. Baldwin	3,507 92			3,507 92	1871 to 1874	"
Hon. James Skead	9,807 65			9,807 65	1861-63-64-69-75 to 1878	"
Batson & Currier	5,558 70			5,558 70	1875 to 1877	"
A. F. A. Knight	546 30			546 30	1878	"
James Walker	11 25			11 25	1877	"
R. Campbell & Son	1,558 50			1,558 50	1879 to 1881	"
James G. Bryson	73 50			73 50	1886	"
Costello Bros.	90 62			90 62	1882	"
N. E. Cormier	428 34			428 34	1888	"
James Yuhill	9 29			9 29	1876	Overcharge.
J. & B. Grier	76 84			76 84	1883	"
R. & W. Conroy	95 42			95 42	1882–1883	" reported in return S—38, for March, 1886.
A. P. White	101 00			101 00	1881	"
B. Caldwell & Son	4 33			4 33	1887	"
J. R. Booth		9,871 93	398 88	10,270 81	1881 to 1888	$398.88 counter claim for damages by the breaking of Coulonge boom.
Perley & Pattee		8,889 85		8,889 85	1881 to 1888	
The Bronson & Weston Lumber Co.		8,180 79		8,180 79	1881 to 1888	
Pierce & Co.		462 18		462 18	1888	
G. A. Grier & Co.		1,060 59		1,060 59	1886–1887	*Chaudiere boomage. These parties claim that they have maintained these works wholly at their own expense since 1881.
Estate late Levi Young		1,461 20		1,461 20	1881 to 1885	
Wm. Mason		413 85		413 85	1881 to 1888	
Gilmour & Co.		406 27		406 27	1884	
John Rochester		258 88		258 88	1881 to 1883	
J. & G. Bryson			252 20	252 20	1886	Counter claim for damages by the breaking of Coulonge works.
	23,997 28	31,006 54	651 08	55,653 90		

EDW. T. SMITH,
Collector of Slide and Boom dues.

No. 2.—STATEMENT of Slide and Boom Dues accrued from the Ottawa River Works, since July 1, 1889, Outstanding on March 31, 1911

Name.	Year to which dues belong.	Chaudiere Boomage in suspense.	Cheneaux Boomage.	Ordinary dues.	Total.	Remarks.
		$	$	$	$	
J. R. Booth	1889-90	2,561 69	.....	.....	2,561 69	Chaudiere boomage reported to Council and referred to Treasury Board should be written off.
Bronson & Weston Lumber Co.	1889-90	2,056 96	.....	.....	2,056 96	
Perley & Pattee	1889-90	1,203 26	.....	.....	1,203 26	
Wm. Mason & Sons	1889-90	167 66	.....	.....	167 66	
Pierse & Co.	1889-90	913 48	.....	.....	913 48	
Alex. Fraser, account Thos. Stephens	1890-91	.....	.....	28 42	28 42	Legal action taken to recover this.
J. R. Booth	1892-93	.....	.....	379 80	379 80	Retained by Mr. Booth in settlement of account due him, which the Auditor General refused to pay, as Mr. Booth appeared to be in arrears in this and statement No. 1.
Bryson & Fraser	1896	.....	.....	196 71	196 71	Have counter claim for work done on slide to this amount.
J. R. Booth	1903	.....	.....	339 27	339 27	Petewawa slidage disputed.
Hawkesbury Lumber Co.	1903	.....	.....	298 10	298 10	" " "
Gilmour & Hughson	1909	.....	39 76	.....	39 76	Should have been written off.
Bank of Montreal	1909	.....	.....	8 30	8 30	
" " (Low Lumber Co.)	1908	.....	.....	67 41	67 41	
W. H. Kelly	1910	.....	.....	36 11	36 11	Since paid.
		$ 6,903 05	$ 39 76	$ 1,355 12	$8,297 93	

EDW. T. SMITH,
Collector of Slide and Boom dues.

No. 3.—STATEMENT of Outstanding Slide Dues, Ottawa District, Bonds for which were sent to Quebec for Collection.

Names.	From 1860.	From 1861.	Total.
	$ cts.	$ cts.	$ cts.
Hon. James Skead	245 00	210 00	455 00
James Mair	.....	696 75	696 75
	245 00	906 75	1,151 75

These amounts were uncollected, as the parties claimed damages for loss caused by the Madawaska boom breaking in 1860.

A decision on their claims was not arrived at till August 2, 1869. On the 5th idem, Messrs. Skead and Mair were notified that the department could not recognize their claim.

To the best of my knowledge, this decision was never communicated to the Collector of Slide Dues; consequently, these accounts remained in abeyance.

Since then, both parties died, and I believe both were insolvent at the time of their death.

EDW. T. SMITH,

Collector of Slide and Boom Dues.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, July 12, 1911.

No. 4.—STATEMENT of the number of Pieces of Square Timber, Saw Logs, &c., that passed through the Government Slides and Works on the River Ottawa and its Tributaries during the Fiscal Year ended 31st March, 1911.

	Pieces.
Square Timber	239
Saw Logs	4,796,970
Boom and Dimension Timber	83,359
Cedars	71,057
Railroad Ties	341,258
Fence Posts	38,983
Telephone Poles	73
	5,331,939

Also 70,332.87 Cords Pulp Wood.
The Revenue accrued on the above was $40,136.34.

EDW. T. SMITH,

Collector of Public Works Revenue

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, 12th July 1911.

No. 5.—STATEMENT showing the Dues Accrued on the Undermentioned Works on the River Ottawa and its Tributaries during the fiscal Year ended March 31, 1910.

River or Other Improvement.	Amount.
Main Ottawa	$ 2,638 03
Cheneaux Boom	5,154 39
River Petewawa	11,662 24
Madawaska	1,161 04
Coulonge	3,645 01
Dumoine	356 47
Black River	8,031 27
Gatineau	7,487 89
	$40,136 34

EDW. T. SMITH,

Collector of Public Works Revenue.

DEPARTMENT OF PUBLIC WORKS,

OTTAWA, 12th July, 1911.

No. 6.—Statement of Slide and Boom Dues from the St. Maurice Slides and Works, outstanding on March 31, 1911.

Name.	Year to which dues belong.	Amount.	Total.	Remarks.
		$ cts.	$ cts.	
George Baptist, Son & Co....	1878	469 95		
" "	1879	2,110 02		
" "	1880	1,696 18	.....	Have counter claims for damages to logs caused by the booms not being stretched early enough in the spring of 1878 to prevent the logs going over the chutes. The claims were submitted to special commissioner, Mr. McDougall, afterwards judge, who recommended that the claims of the parties should be allowed.
" "	1881	293 69		
" "	1882	165 80		
" "	1884	118 50		
" "	1888	4 28		
			4,859 02	
Ross, Ritchie & Co.....	1878	3,072 84		
"	1883	2,173 69		
"	1884	28 96		
"	1886	1 62		
"	1887	4 38		
			5,281 48	
Alex. Baptist.....	1879	2,116 96		
			2,116 96	
Wm. Ritchie & Co.....	1888	779 24		
"	1889	332 11		
			1,111 35	Of this amount $754.20 is claimed to be an overcharge—Insolvent.
Ritchie Bros.....	1886	413 43	.....	This amount is composed of overcharges in 1886 and 1887 of $842.76 and overpayment in 1884 of $205.38.
"	1887	634 71		
			1,048 14	
G. B. Hall.....	1890	.....	49 34	Insolvent.
T. E. Normand.....	1890	.....	14 28	Claims that this balance is an overcharge.
Treffle Biron.....	1891	.....	0 92	Would cost more to collect than it is worth.
			*14,481 49	
The Laurentide Paper Co....	1909	.....	3,709 10	
			18,190 59	

*To make this balance agree with the Public Accounts, there should be deducted $7.93 overcredited Alex. Baptist, and $217.17 added thereto, being $190.40 paid July 23, 1884, and $26.77 overcharged in error to Wm. Little, not in any of the collector's returns, which will give the balance due September 30, 1894, of $14,690.73.

EDW. T. SMITH,

Collector of Slide and Boom Dues.

Department of Public Works,
Ottawa, 12th July, 1911.

No. 7.—STATEMENT of Slide and Boom Dues accrued from the Newcastle and Trent River Works, outstanding on March 31, 1911.

Name.	Year to which dues belong.	Amounts disputed.	Ordinary dues.	Total.	Remarks.
		$ cts.	$ cts.	$ cts.	
Irwin & Boyd	1881	59 79	.....	59 79	
Thompson & McArthur	1880	52 78	.....	52 78	
Jabez Thurston	1882	12 50	.....	12 50	Insolvent.
McDougall & Ludgate	1879	65 07	.....	65 07	
Bigelow & Trounce	1882 to 1885	216 21	.....	216 21	
R. G. Strickland	1882, '83, '85, '86, '87	215 08	.....	215 08	
Est. late Geo. Hilliard	1877 to 1883 and 1886	354 15	.....	354 15	Dead and estate distributed.
T. G. Hazlett	1881, '82, '84 to '89	885 25	.....	885 25	
J. M. Irwin	1882, '83, '85 to '88	698 45	.....	698 45	According to judgment in the Exchequer Court *re* Boyd vs. Smith, these cannot be collected.
D. Ullyot	1881 to 1887	547 68	.....	547 68	
Greene & Ellis	1881 to '83, '85, '88 and 89	157 01	.....	157 01	
A. W. Parkin	1884, '85, '88, '90 and '91	65 92	.....	65 92	
The Dickson estate	1883	137 50	.....	137 50	
Alfred McDonald	1888	40 80	.....	40 80	
John Parkin	1889	13 00	.....	13 00	
John Dovcy	1894, '95, '96	.....	35 70	35 70	Sent to Department of Justice for collection.
		3,521 19	$35 70	3,556 89	

EDW. T. SMITH,

Collector of Public Works Revenue.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, 12th July, 1911.

THE DRY DOCK AT ESQUIMALT.

No. 8.—Statement of Dues and other charges collected during the Year ended 31st March, 1911.

Name of Vessel Docked.	Tonnage	Period of Dockage. From		Period of Dockage. To		Dockage Charges.	Other Charges.	Total.
		1910		1910				
S.S. *Restorer*	3,180	Mch.	29	Ap'l.	3	616 00	24 60	640 60
D.G.S. *Fruhling*	745	Ap'l.	9	Ap'l.	30	1,450 00	61 20	1,511 20
S.S. *Rupert City*	2,898	Ap'l.	30	May	30	498 00	13 20	511 20
D.G.S. *Lillooet*	591	Mch.	14	Mch.	16	400 00	21 00	421 00
H.M.S. *Shearwater*	980	May	23	June	1	432 16	.....	432 16
S.S. *Prince Rupert*	3,379	June	6	June	8	508 00	1 80	509 80
S.S. *Yucatan*	3,525	June	8	June	25	2,437 00	57 04	2,494 04
S.S. *Cuzco*	5,152	July	5	July	6	544 00	1 80	545 80
S.S. *Prince George*	3,372	July	14	July	15	508 00	10 80	518 80
S.S. *E. M. Coleman*	Water Supplied			.....		.....	2 00	2 00
S.S. *Lonsdale*	3,171	Aug.	1	Aug.	8	1,024 00	30 60	1,054 60
S.S. *Princess Charlotte*	3,844	Sept.	1	Sept.	2	517 00	21 00	538 00
S.S. *Prince Rupert*	3,379	Sept.	11	Sept.	12	400 00	1 20	401 20
H.M.S. *Algerine*	1,100	Sept.	16	Sept.	29	633 11	.....	633 11
H.M.S. *Shearwater*	980	Oct.	20	Oct.	29	408 22	.....	408 22
S.S. *Bankdale*	5,151	Nov.	4	Nov.	10	976 00	1 20	977 20
S.S. *Prince Rupert*	3,379	Dec.	12	Dec.	14	616 00	24 00	640 00
		1911		1911				
S.S. *F. Buck*	Water supplied,					.....	34 20	34 20
S.S. *Knight of St. George*	4,710	Jan.	9	Jan.	23	805 00	24 60	829 60
S.S. *Titania*	6,650	Feb.	14	Mch.	16	5,417 00	55 00	5,472 00
S.S. *Prince George*	3,372	Mch.	21	Ap'l.	2	1,588 00	140 40	1,728 40
	59,558					19,777 49	525 64	20,303 13

EDW. T. SMITH,

Collector of Public Works Revenue.

Ottawa, 12th July, 1911.

THE DRY DOCK AT LEVIS.

No. 9.—STATEMENT of Dues and other charges collected during the Year ended 31st March, 1911.

Name of Vessel Docked.	Tonnage	Period of Dockage. From	Period of Dockage. To	Dockage Charges.	Other Charges.	Total.
		1910	1910			
S.S. *Lord Strathcona*		Nov. 30	Ap'l. 14	200 00		200 00
Sch. *G. T. D.*		Nov. 30	Ap'l. 14	400 00		400 00
		1910	1910			
S.S. *Rapids King*	1,801	Ap'l. 18	May 9	1,932 99		1,932 99
Dge. *International*	528¼	Nov. 30	Ap'l. 14	600 00		600 00
Tug *Storm King*	108	Nov. 30	Ap'l. 14	400 00		400 00
Lightship *Red Island*		Nov. 30	Ap'l. 14	400 00		400 00
S.S. *Prinz Oscar*		Entry Fee,		200 00		200 00
S.S. *Aoeta*		Entry Fee,		200 00		200 00
Lightship *Princess Shoal No. 7*		Wintering, 1909-	10	400 00		400 00
		1910	1910			
S.S. *Cartier*	555	May 11	May 19	250 00		250 00
S.S. *Arctic*	762	Wintering, 1909-	10	600 00		600 00
		1910	1910			
S.S. *Rouville*	301·45	Ap'l. 18	May 9	631 10		631 10
S.S. *Princess*	542	Ap'l. 18	May 9	896 20		896 20
S.S. *Champlain*	522	May 21	June 1	561 00		561 00
S.S. *Montcalm*	1,432	May 21	June 1	994 40		994 40
S.S. *Lady Grey*	733	May 11	May 19	593 20		593 20
S.S. *Prinz Oscar*	6,026	July 7	Aug. 10	5,827 16	67 90	5,895 06
S.S. *Craigendorn*		Entry Fee,		200 00		200 00
Dge. *Progress*					163 20	163 20
Caisson		Entry Fee,		200 00		200 00
Str. *Lauzon & Levis*		Entry Fee,		400 00		400 00
S.S. *Manchester Engineer*		Entry Fee,		200 00		200 00
S.S. *Manchester Engineer*	4,302	Sept. 21	Oct. 8	2,512 68	30 50	2,543 18
Str. *Tadousac*		Entry Fee,		200 00		200 00
S.S. *Druid*	503	Aug. 12	Aug. 19	450 00	50 00	500 00
Dge. *International*					133 20	133 20
Scow No. 1					2 30	2 30
		1910	1910			
D.G.S. *Gulnare*	262	Aug. 12	Sept. 19	797 80	0 50	798 30
	18,378·20			20,047 43	447 60	20,495 03

EDW. T. SMITH,

Collector of Public Works Revenue.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, 12th July, 1911.

THE DRY DOCK AT KINGSTON.

No. 10.—Statement of Dues and other charges collected during the Year ended 31st March, 1911.

Name of Vessel Docked.	Tonnage	Period of Dockage. From		Period of Dockage. To		Dockage Charges.	Other Charges.	Total.
		1910		1910				
Tug D.G. *Thompson*	182	Ap'l.	1	Ap'l.	2	46 40	5 00	51 40
Barge *Cromwell*	586	Ap'l.	4	Ap'l.	7	190 64	.....	190 64
Barge *Hilda*	418	Ap'l.	8	Ap'l.	9	98 23	3 00	101 23
Str. *City of Ottawa*	1,529	Ap'l.	11	Ap'l.	23	1,380 23	.....	1,380 23
Str. *Port Colborne*	1,729	Ap'l.	29	May	1	343 93	10 50	354 43
	4,444					2,059 43	18 50	2,077 93

EDW. T. SMITH,

Collector of Public Works Revenue.

Department of Public Works,

Ottawa, 12th July, 1911.

No 11.—Hydraulic and other Rents, &c., Lessees' Accounts

Balance due April 1, 1910.	Rents Accrued up to March 31, 1911.	Total.	Location.	Occupant.
$ cts.	$ cts.	$ cts.		
.....	200 00	200 00	Ottawa River	Royal Trust Co.
.....	100 00	100 00	"	"
.....	300 00	300 00	"	"
.....	100 00	100 00	"	"
.....	100 00	100 00	"	"
.....	300 00	300 00	"	"
.....	400 00	400 00	"	"
.....	300 00	300 00	"	"
.....	100 00	100 00	"	Ottawa Electric Railway Co.
.....	600 00	600 00	"	The Ottawa Power Co.
.....	200 00	200 00	"	Royal Trust Co. (in abeyance)
.....	208 00	208 00	"	"
.....	10 00	10 00	"	"
100 00	100 00	200 00	"	"
.....	96 00	96 00	"	"
120 00	8 00	128 00	"	Mary Conroy
570 84	.....	570 84	"	Royal Trust Co.
.....	25 00	25 00	"	"
200 00	.....	200 00	"	Merchants Bank of Canada
96 00	.....	96 00	"	"
.....	1 00	1 00	"	Ottawa Electric Railway Co.
380 00	.....	380 00	"	John Rankin
.....	150 00	150 00	"	J. R. Booth
5 00	5 00	10 00	"	Ottawa Electric Co.
.....	50 00	50 00	"	Royal Trust Co.
1 00	1 00	2 00	"	Alfred Desjardin
.....	100 00	100 00	"	Royal Trust Co.
.....	10 00	10 00	"	"
.....	1 00	1 00	St. Lawrence	Quebec Harbour Commissioners
275 00	.....	275 00	"	Richelieu and Ontario Navigation Co.
.....	1 00	1 00	Quebec	Corporation of Quebec
1 00	1 00	2 00	"	Narcisse Blais
.....	1 00	1 00	Rondeau Harbour	School Trustees
.....	1 00	1 00	Collingwood	Great Northern Transit Co
6 00	1 00	7 00	Ottawa	E. G. Laverdure
.....	1 00	1 00	Three Rivers	Corporation of Three Rivers
.....	100 00	100 00	"	Union Bag and Paper Co.
165 00	.....	165 00	British Columbia	A. Peel
90 00	.....	90 00	"	Jonathan Maury
25 00	25 00	50 00	"	Roderick Finlayson
.....	25 00	25 00	"	Joseph Spratt
.....	1 00	1 00	"	Bank British Columbia
4 00	.....	4 00	"	W. Dodd
.....	12 00	12 00	"	D. W. Gordon
.....	5 00	5 00	"	George A, Huff
70 00	.....	70 00	River du Lievre	Dominion Phosphate Co.
1 00	.....	1 00	Charlottetown	Rt. Rev. Bishop McIntyre
.....	16 00	16 00	Antigonish, N.S	R. C. Archibald
.....	1 00	1 00	Owen Sound	G. T. Railway
240 00	.....	240 00	Windsor	Archie McNee
5 00	5 00	10 00	Bayfield, N.S.	Chas. L. Gass
1 00	1 00	2 00	"	"
.....	10 00	10 00	Village of Brook	Wm. Pedweel
.....	1 00	1 00	Walkerton, Ont.	D. Robertson and J. Rowland
.....	1 00	1 00	British Columbia	Canadian Pacific Railway Co.
.....	5 00	5 00	Co. Grey, Ont.	Jacob Duke Spiers, estate of
.....	1 00	1 00	Levis, Que.	Cyril Robitaille
2,355 84	3,680 00	6,035 84		

DEPARTMENT OF PUBLIC WORKS,

OTTAWA, 12th July, 1911.

for the Year ending March 31, 1911.

Description of Property.	Date to which Account is made up.	Paid during the Year.	Balance due March 31, 1911.	Total.
		$ cts.	$ cts.	$ cts.
Lot B and C Chaudiere St., service ground	Dec. 31, 1910.	200 00	.....	200 00
Lot D	"	100 00	.....	100 00
Lots H, I, J, grist mill, North Head Street	"	300 00	.....	300 00
Lot K, fanning mill, South Head Street	"	100 00	.....	100 00
Lot E, service ground	"	100 00	.....	100 00
Lots Q, R and T, Service Ground, North Middle St	"	300 00	.....	300 00
Lots M, N, O and P, Service Ground (no water used)	"	400 00	.....	400 00
Lots E, F and G, South Head Street	"	300 00	.....	300 00
Lot S, Service Ground	"	100 00	.....	100 00
Lots U, V, W, X, Y and Z, Service Ground	"	600 00	.....	600 00
Two strips of land	Dec. 31, 1911.	.....	200 00	200 00
Portion Government Reserve, head of slide	Sept. 20, 1911.	208 00	.....	208 00
Bridge over slide	June 30, 1911.	10 00	.....	10 00
Strip of land, Amelia Island	Jan. 1, 1912.	200 00	.....	200 00
Reserve head of Chaudiere Island	Jan. 1, 1912.	96 00	.....	96 00
Small island in Deschesne Rapids	Jan. 1, 1912.	.....	128 00	128 00
Portion lot 39, Con. A Nepean	Jan. 31, 1884.	.....	570 84	570 84
Excavated channel, slide and 2 dams, Little Chaudiere	Mar. 1, 1912.	25 00	.....	25 00
Water lot opposite lot 30, Con. A, Nepean	Dec. 1, 1891.	.....	200 00	200 00
Three small islands, Ottawa River	Apr. 30, 1891.	.....	96 00	96 00
Covering over portion of Ottawa slides	Nov. 9, 1911.	1 00	.....	1 00
East portion Hawley Island	June 20, 1891.	.....	380 00	380 00
Piece of land, southwest end Union Bridge	May 12, 1910.	150 00	.....	150 00
Piece of land Victoria Island	Mar. 11, 1912.	10 00	.....	10 00
Land, south side Middle Street, Victoria Island	Aug. 31, 1911.	50 00	.....	50 00
Land, Longue Pointe Rouge, Templeton Co., Ottawa	Oct. 4, 1911.	2 00	.....	2 00
South-west of Lot No. 1, Amelia Island	Oct. 9, 1910.	100 00	.....	100 00
Lot Pa, South Head Street	Jan. 10, 1912.	10 00	.....	10 00
Lot near Custom House, Quebec	Sept. 1, 1911.	1 00	.....	1 00
Roadway from Pier at Coteau Landing	July 1, 1909.	.....	275 00	275 00
Old Provincial Government Building and Grounds	June 24, 1911.	1 00	.....	1 00
Privilege to erect bridge on St. Charles River	Feb. 6, 1912.	2 00	.....	2 00
Log building, former Custom House, Shrewsbury, Ont	Sept. 11, 1910.	1 00	.....	1 00
Use of breakwater to store coal	Jan. 1, 1912.	1 00	.....	1 00
S. E. half lot 8, Ottawa	Dec. 18, 1911.	.....	7 00	7 00
Land, Isle St. Christophe, river St. Maurice	Dec. 1, 1911.	1 00	.....	1 00
Land, Ile St. Christophe, river St. Maurice	June 30, 1910.	100 00	.....	100 00
Portion of Assay Office, New Westminster	June 30, 1889.	.....	165 00	165 00
Portion of Assay Office, New Westminster	June 30, 1889.	.....	90 00	90 00
Permit for two bulkheads, Victoria Harbour	June 1, 1911.	50 00	.....	50 00
Privilege to build wharf on lots A and C	June 1, 1911.	.....	25 00	25 00
Right to drain through Government property, Naniamo	Dec. 1, 1911.	1 00	.....	1 00
Old Government House, Yale	July 25, 1908.	.....	4 00	4 00
Beach Lots A, C, E, F, ft. of 7, 8, 9, Nanaimo Harbour	Aug. 12, 1911.	12 00	.....	12 00
Permit to build wharf, lot A, block 2, Sumas River	Aug. 12, 1911.	5 00	.....	5 00
Permit for a landing at Little Rapids, River du Lievre	Apr. 30, 1898.	.....	70 00	70 00
Leave to drain to main service public building	May 16, 1902.	.....	1 00	1 00
Tract of land and water lot, McNair's Cove	Dec. 31, 1911.	16 00	.....	16 00
Lot of land west side of Sydenham River	Dec. 31, 1911.	1 00	.....	1 00
Lot on Ouelette Street, Windsor, Ont	Apr. 30, 1900.	.....	240 00	240 00
Water Lot	Dec. 8, 1911.	.....	10 00	10 00
Water Lot	June 9, 1911.	.....	2 00	2 00
Water Lot	Mar. 31, 1911.	.....	10 00	10 00
Right of way over strip of land	Apr. 27, 1911.	1 00	.....	1 00
Portion of Custom House Lot, New Westminster	Apr. 14, 1911.	1 00	.....	1 00
Water Lot	Apr. 8, 1911.	5 00	.....	5 00
Ground rent	Apr. 4, 1911.	1 00	.....	1 00
		3,562 00	2,473 84	6,035 84

EDW. T. SMITH,

Collector of Public Works Revenue.

No. 12.—Rents, &c., from

Balance due on April 1, 1911.	Accrued during the year ended March 31, 1911.	Total.	Occupant.
$ cts.	$ cts.	$ cts.	
2,600 62	.....	2,600 62	R. Murdy.
8,000 00	.....	8,000 00	Corporation Galt & Dundas.
.....	1 00	1 00	North American Telegraph Co.
.....	25 00	25 00	Grand Trunk Railway Co.
43 75	.....	43 75	
.....	83 34	83 34	Alem Jos. Green.
10,644 37	109 34	10,753 71	

Minor Public Works.

Description of Property.	Paid during the year ended March 31, 1911.	Balance due on March 31, 1911.	Total.
	$ cts.	$ cts.	$ cts.
Dunville Bridge	.....	2,600 62	2,600 62
Dundas & Waterloo Road	.....	8,000 00	8,000 00
Government Telegraph line between Bath and Amherst	1 00	.....	1 00
Wiarton Docks	25 00	.....	25 00
Part of building, N.B.	.....	43 75	43 75
Building Ouellette Ave., Windsor, Ont.	83 34	.....	83 34
	109 34	10,644 37	10,753 71

DR. No. 13.—HYDRAULIC and other Rents, &c.—

Balances due on April, 1908.	Totals.	Number.	Location.	Name of Proprietors.
$ cts.	$ cts.			LAND SALES —PRINCIPAL ACCOUNT.
12,092 83	12,092 83	1	Hamilton and Port Dover Road	Choat & Kern
433 34	433 34	2	Bonner's property, Quebec	Timothy Sullivan, now M. Murphy
333 34	333 34	3		John Bailey, now Alex. Powell
300 00	300 00	4		Abraham Thompson
147 80	147 80	5		John Boomer
248 40	248 40	6		John Garbatz, now J. C. Nolan
154 80	154 80	7		N. H. Bowen
600 00	600 00	8		Estate Robert Reid
333 33	333 33	9		John Chevalier
533 33	533 33	10		Daniel Holden
333 33	333 33	11		George Creeley
63 00	63 00	12		Thomas McAdam
15,573 50	15,573 50			LAND SALES—INTEREST ACCOUNT.
6,298 25	6,298 25	1	Hamilton and Port Dover Road	Choat & Kern (matured)
558 00	558 00	2	Bonner's property, Quebec	Timothy Sullivan, now M. Murphy
120 00	120 00	3		John Bailey, now Alex. Powell
306 00	306 00	4		Abraham Thompson
155 22	155 22	5		John Boomer
275 82	275 82	6		John Garbatz, now J. C. Nolan
208 95	208 95	7		N. H. Bowen
828 00	828 00	8		Estate Robert Reid
190 00	190 00	9		John Chevalier
298 68	298 68	10		Daniel Holden
35 91	35 91	11		George Creeley
100 00	100 00	12		Thomas McAdam
100 00	100 00	13		Joseph Brook, tenant
9,474 83	9,474 83			

DEPARTMENT OF PUBLIC WORKS,

OTTAWA, 12th July, 1911.

—LESSEES' Accounts, 1908-1909—*Concluded.* CR.

Description of Property.	Number.	Date to which the account is made up.	Balances transferred to Public Works Department by O.C. of April 27, 1909.	Totals.
			$ cts.	$ cts.
Hamilton and Port Dover and Caledonia Bridge	1	.....	12,092 83	12,092 83
Lot No. 1, Wolfe Street	2	.....	433 34	433 34
" 9 "	3	.....	333 34	333 34
" 49 "	4	.....	300 00	300 00
" 73 and 74, Tower Street	5	.....	147 80	147 80
" 64 Wolfe Street, and 211 and 252 Ware Street	6	.....	248 40	248 40
" 67 and 68, Monument Street	7	.....	154 80	154 80
" 22 and 23, Wolfe Street	8	.....	600 00	600 00
" 32, Wolfe Street	9	.....	333 33	333 33
" 65 and 66, Wolfe Street	10	.....	533 33	533 33
" 31, Wolfe Street	11	.....	333 33	333 33
" 135, Church Street	12	.....	63 00	63 00
			15,573 50	15,573 50
.....	1	June 30, 1874	6,298 25	6,298 25
Lot No. 1, Wolfe Street	2	May 1, 1889	558 00	558 00
" 9 "	3	"	120 00	120 00
" 49 "	4	"	306 00	306 00
" 73 and 74, Tower Street	5	"	155 22	155 22
" 64, Wolfe Street, and 211 and 252 Ware Street	6	"	275 82	275 82
" 67 and 68, Monument Street	7	"	208 95	208 95
" 22 and 23, Wolfe Street	8	"	828 00	828 00
" 32, Wolfe Street	9	Nov. 1, 1863	190 00	190 00
" 65 and 66, Wolfe Street	10	"	298 68	298 68
" 31, Wolfe Street	11	"	35 91	35 91
" 135, Church Street	12	"	100 00	100 00
Monument Hotel	13	"	100 00	100 00
			9,474 83	9,474 83

EDW. T. SMITH,

Collector of Public Works Revenue.

PART VII

MISCELLANEOUS

CONTRACTS LET BY THIS DEPARTMENT.

PROPERTY PURCHASED OR SOLD.

PROPERTY, LEASED TO OR BY THE DEPARTMENT.

CURATOR'S REPORT, NATIONAL ART GALLERY.

NAMES OF CHIEF OFFICERS OF THE DEPARTMENT.

NAMES OF OFFICIALS EMPLOYED ON SLIDES AND BOOMS.

NAMES OF PERSONS EMPLOYED ON GRAVING DOCKS.

NAMES OF ENGINEERS, FIREMEN AND CARETAKERS OF PUBLIC BUILDINGS.

FOR THE

FISCAL YEAR ENDED MARCH 31, 1911

DEPARTMENT OF PUBLIC WORKS OF CANADA,

OTTAWA, July 22, 1911.

SIR,—I have the honour to transmit the following statements concerning the transactions of the department during the last fiscal year, with respect to contracts and property, and which are required for insertion in the annual report, 1910-11, viz.:—

No. 1. Statement of contracts let by this department during the fiscal year ended March 31, past.

No. 2. Statement of property purchased and sold by the department during the same period.

No. 3. Statement of property leased to and by the said department during the same period.

No. 4. A list of some of the Public Acts of the Parliament of Canada, passed at the last session, and orders in council having reference to the department.

I have the honour to be, sir,
Your obedient servant,

J. A. CHASSE,
Law Clerk.

R. C. DESROCHERS, Esq.,
Secretary of the Department of Public Works,
Ottawa, Ont.

STATEMENT

SHOWING

1ST.—CONTRACTS LET BY THE DEPARTMENT OF PUBLIC WORKS OF CANADA, FROM APRIL 1, 1910, TO MARCH 31, 1911.

2ND.—PROPERTY PURCHASED OR SOLD BY THE DEPARTMENT OF PUBLIC WORKS DURING THE FISCAL YEAR ENDED MARCH 31, 1911.

3RD.—PROPERTY LEASED TO AND BY THE DEPARTMENT OF PUBLIC WORKS DURING THE FISCAL YEAR ENDED MARCH 31, 1911.

No. 1.—Contracts let by the Department of Public Works of Canada, from April 1, 1910, to March 31, 1911.

Works.			Names of Contractors.	Date of Contract.	Amount.
					$ cts.
Public Buildings.					
Nova Scotia.					
Amherst	Public Building	Supply of coal	J. H. Hewson	Sept. 9, 1910	239 25
"	Post Office, etc., building	Installation of electric light, wiring and fittings.	The Empire Elec. and Mfg. Co. of Ottawa, Ltd	Mar. 10, 1911	893 00
Annapolis	"	Supply of coal	Schafner & Fisher	Sept. 26, 1910	205 30
Antigonish	"	"	Acadia Coal Company	Sept. 12, 1910	184 30
Arichat	"	"	C. P. Terrio	Sept. 29, 1910	130 50
Baddeck	Public Building	"	McKay, McAskell & Company	Sept. 13, 1910	157 50
Bridgewater	Post Office	"	The Intercolonial Coal Mining Company	Sept. 19, 1910	226 00
Canso	Public Building	"	A. N. Whitman & Son	Sept. 10, 1910	275 00
Dartmouth	"	"	Maritime Coal, Ry. and Power Co., Ltd	Oct. 6, 1910	78 30
Digby	Post Office	"	Schafner & Fisher	Sept. 26, 1910	230 37
"	Post Office, Customs and Inland Revenue Building.	In-Elec. light wiring and fittings.	Farquhar Bros	Oct. 4, 1910	894 00
Glace Bay	Public Building	Supply of coal	Ronald McDonald	Oct. 20, 1910	159 10
Guysborough	Post Office	"	Angus McDonald	Oct. 28, 1910	201 25
Halifax	New Custom House	"	Acadia Coal Company	Sept. 12, 1910	684 11
"	Post Office	"	"	Sept. 12, 1910	489 49
"	Asst. Rec.-Gen. Office	"	"	Sept. 12, 1910	28 66
"	Immigration Building	"	"	Sept. 12, 1910	425 30
"	Detention Hospital	"	"	Sept. 12, 1910	351 74
					405 36
"	Examining Warehouse	"	"	Sept. 12, 1910	183 24
"	Asst. Rec.-Gen. Office	"	S. Cunard & Company	Sept. 13, 1910	409 00
"	Immigration Building	"	"	Sept. 13, 1910	192 89
"	Post Office	Electric light fixtures, etc., to	J. A. Dunn, Ltd	Sept. 30, 1910	1,745 00
"	Savings Bank	Fittings	Spencer Bros. & Turner, Ltd	Oct. 3, 1910	1,708 00
Inverness	Public Building	Supply of coal	The Inverness Ry. Coal Company	Sept. 13, 1910	48 75
Kentville	"	"	Schafner & Fisher	Sept. 26, 1910	182 80
Liverpool	Post Office	"	The Intercolonial Coal & Mining Company	Sept. 19, 1910	180 00
Lunenburg	"	"	John B. Young	Sept. 10, 1910	201 25
"	"	Installation of electric light, wiring and fittings.	The Empire Elec. & Mfg. Co. of Ottawa, Ltd.	Mar. 10, 1911	863 00
New Glasgow	Public Building	Supply of coal	Acadia Coal Company	Sept. 12, 1910	255 07
North Sydney	Post Office	"	The MacKay Mining Company	Sept. 12, 1910	206 55

Pictou	Custom House	Supply of coal	The Intercolonial Coal Mining Company	Sept. 19, 1910	230 37
"	Post Office	"	" " "	Sept. 19, 1910	184 30
Shelburne	"	"	Joseph McGill	Sept. 12, 1910	138 67
Springhill	"	"	Cumberland Railway and Coal Company	Sept. 8, 1910	244 20
Sydney	Public Building	"	Dominion Coal Company	Sept. 10, 1910	195 00
Sydney Mines	"	"	The MacKay Mining Co	Sept. 12, 1910	178 45
Truro	"	"	Acadia Coal Company	Sept. 12, 1910	249 52
Westville	"	"	The Intercolonial Coal Mining Company	Sept. 19, 1910	157 38
Windsor	"	"	F. W. Dimock	Sept. 17, 1910	260 05
Yarmouth	"	"	L. E. Baker	Sept. 14, 1910	243 20
	Prince Edward Island.				
Charlottetown	Dominion Building	Supply of coal	A. Pickard & Company	Oct. 20, 1910	838 07
Georgetown	Post Office	"	Poole & Thompson	Oct. 6, 1910	132 06
Montague	"	"	Poole & Thompson	Oct. 6, 1910	172 46
Souris	Public Building	"	C. Lyons & Company	Oct. 11, 1910	249 45
Summerside	"	"	R. T. Holman, Limited	Sept. 19, 1910	301 70
"	"	"	Joseph Read & Company, Ltd	Sept. 21, 1910	51 74
"	Armoury	Construction of	M. F. Schurman Co., Ltd	Nov. 5, 1910	8,000 00
	New Brunswick.				
Bathurst	Public Building	Supply of coal	The Stothart Mercantile Company	Oct. 24, 1910	269 90
Campbellton	"	"	Maritime Coal, Railway and Power Company	Oct. 24, 1910	111 75
"	"	Restoration to	James Reid	Nov. 19, 1910	28,592 00
Chatham	Post Office	Supply of coal	The Stothart Mercantile Company	Oct. 24, 1910	273 49
Dalhousie	"	"	Frank S. Blair	Oct. 12, 1910	254 10
Fredericton	"	"	Patrick Farrell	Oct. 14, 1910	325 73
Grand Falls	Public Building	Construction of	Powers & Brewer	Dec. 24, 1910	17,777 00
Hartland	"	"	J. W. Smalley and Chas. J. Smalley	Nov. 19, 1910	16,700 00
Marysville	Post Office	Supply of coal	Patrick Farrell	Oct. 14, 1910	176 75
Moncton	"	"	The Intercolonial Coal Mining Company, Ltd	Oct. 25, 1910	295 41
Moncton	Post Office Building	Alterations to	O. J. Dunham, and P. M. LeBlanc	Nov. 28, 1910	5,739 00
Newcastle	Post Office	Supply of coal	The Stothart Mercantile Company	Oct. 24, 1910	253 10
Richibucto	"	"	W. E. Forbes	Sept. 24, 1910	224 10
Sand Point, St. John,	Extension to No. 6 Warehouse and Warehouse No. 7		E. Scully and J. A. Adams	Nov. 15, 1910	22,900 00
St. John	Post Office	Supply of coal	J. S. Gibson & Co	Oct. 24, 1910	581 17
"	Savings Bank	"	"	Oct. 24, 1910	29 78
"	Custom House	"	"	Oct. 24, 1910	129 13
"	New Detention Building	"	"	Oct. 24, 1910	1,563 71
"	Post Office (West)	"	R. P. & W. F. Starr	Oct. 24, 1910	83 77
"	Custom House	"	"	Oct. 24, 1910	—
"	Immigration Building	"	"	Oct. 24, 1910	—
"	New Detention Building	"	"	Oct. 24, 1910	464 18
"	Drill Hall	Construction of	Michael Sullivan	Feb. 6, 1911	742 76
"	Drill Hall	Foundations for fan coils, heating apparatus, main hall.	Canadian Buffalo Forge Company, Ltd	Feb. 6, 1911	76 70
					234,936 00
					2,700 00

No. 1.—Contracts let by the Department of Public Works of Canada, &c.—*Continued.*

Works.			Names of Contractors.	Date of Contract.	Amount.
					$ cts.
Public Buildings.					
New Brunswick—Con.					
St. Stephen	Public Building	Supply of coal	W. E. Purvis	Oct. 25, 1910	149 50
Sussex	"	"	T. H. Brown	Oct. 8, 1910	372 75
Tracadie	Lazaretto	"	The Stothart Mercantile Company	Oct. 24, 1910	1,095 83
Woodstock	Public Building	"	W. F. Dibblee & Son	Sept. 20, 1910	278 15
Quebec.					
Acton Vale	Post Office	Supply of coal	S. E. Desmarais & Company	Sept. 19, 1910	132 09
Athabaska	Public Building	Construction of	Paquet & Godbout	Oct. 15, 1910	22,000 00
Aylmer	Post Office	Supply of coal	Aylmer Coal and Supply Co., Ltd	Sept. 16, 1910	183 58
"	Post Office	Alterations, etc., to	Aug. Boehmer	Nov. 23, 1910	4,200 00
Berthierville	Post Office	Supply of coal	F. O. Lamarche	Sept. 21, 1910	120 80
Buckingham	Public Building	"	The Traders' Company	Sept. 27, 1910	153 65
Chicoutimi	Public Building	"	Cote, Boivin & Co.	Sept. 22, 1910	240 00
Coaticook	"	"	W. C. Webster & Son	Sept. 19, 1910	
Cookshire	Post Office	"	E. J. Planche & Co.	Sept. 20, 1910	62 85
Drummondville	"	"	Ephrem Archambault	Sept. 20, 1910	134 88
Dundee	Custom House	"	A. S. Matthews	Sept. 17, 1910	81 00
Farnham	Post Office	"	A. B. Comeau & Co.	Sept. 21, 1910	69 00
Fraserville	Armoury Building	Construction of	Phillippe Dumont	July 23, 1910	8,435 00
"	Post Office	Supply of coal	Nap. Dion	Oct. 12, 1910	350 00
Granby	"	"	P. Phoenix	Sept. 19, 1910	133 00
Hochelaga	"	"	The T. F. Moore Company	Sept. 26, 1910	135 94
Hull	"	"	The Hull Coal Company	Sept. 9, 1910	281 30
Iberville	"	"	John Donaghy	Sept. 16, 1910	72 54
Joliette	Armoury	Interior fittings	The J. T. Schell Company	Apr. 18, 1910	517 00
"	Post Office	Supply of coal	J. Mandeville & Co.	Sept. 21, 1910	183 55
Knowlton	Public Building	"	F. A. Knowlton	Oct. 6, 1910	168 51
Lachine	Post Office	"	Joseph Allard	Sept. 26, 1910	57 00
"	"	"	Martin Company, Ltd	Sept. 26, 1910	53 60
Laprairie	"	"	H. Brossard	Sept. 26, 1910	150 16
L'Assomption	"	"	L. Desmarais	Sept. 8, 1910	115 14
Levis	"	"	Robitaille & Company	Sept. 26, 1910	440 95
Longueuil	"	"	Felix C. Denicourt	Sept. 17, 1910	113 05

Magog	Armoury	Interior fittings	A. J. Whitehead	Aug. 18, 1910	884 00
"	Post Office	Supply of coal	Thos. B. Mullins	Sept. 19, 1910	284 67
Marieville	Public building	Construction of	Lachance Bros	Sept. 29, 1910	16,300 00
Megantic	"	"	Paquet & Godbout	Nov. 18, 1910	18,00 00
Montmagny	Post Office	Supply of coal	A. Belanger	Sept. 22, 1910	149 00
Montreal	Postal Station "D"	Supply of screens	L. G. Valiquette	July 8, 1910	395 00
"	Central Post Office	Interior fittings	The J. T. Schell Company	Aug. 6, 1910	8,797 00
"	Examining Warehouse	Supply of coal	L. Cohen & Son	Sept. 24, 1910	1,275 33
"	Express Parcel Office	"	The T. F. Moore Company	Sept. 26, 1910	702 24
"	Custom House	Supply of coal	The T. F. Moore Company	Sept. 26, 1910	888 06
"	Post Office	"	"	Sept. 26, 1910	2,146 13
"	Revenue Building	"	"	Sept. 26, 1910	264 96
"	Postal Station "B"	"	"	Sept. 26, 1910	289 46
"	Postal Station "D"	"	"	Sept. 26, 1910	229 44
"	Immigration Building	"	"	Sept. 26, 1910	300 90
"	Postal Station "C"	"	Lackawanna Coal Company	Sept. 26, 1910	229 09
Nicolet	Post Office	"	H. Lacerte	Sept. 10, 1910	197 82
Pierreville	Public Building	Interior fittings	The Berlin Interior Hardwood Co., Ltd	Oct. 15, 1910	635 00
"	"	Supply of coal	Laperriere & Son	Nov. 23, 1910	75 00
Plessisville	Post Office	"	La Cie Savoie-Guay	Sept. 7, 1910	206 25
Quebec (St. Roch)	Post Office	Interior fittings	E. P. McGrath & Company	Apr. 20, 1910	1,421 00
"	Marine Agency	Supply of coal	Madden & Son	Oct. 15, 1910	
"	Governor-Generals quarters.	"	"	Oct. 15, 1910	
"	Weights and Measures	"	"	Oct. 15, 1910	126 59
Quebec (St. Roch)	Post Office	"	"		186 28
"	Culler's Office	"	The Canadian Import Company	Oct. 15, 1910	201 29
"	Marine Agency	"	"	Oct. 13, 1910	217 43
"	Examining Warehouse	"	"	Oct. 13, 1910	63 96
"	Immigration Office	"	"	Oct. 13, 1910	621 68
"	Immigration Building	"	"	Oct. 13, 1910	150 91
"	Post Office	"	"	Oct. 13, 1910	716 41
"	Custom House		"	Oct. 13, 1910	838 83
Richmond	Public Building	Restoration of	Jos. Gosselin and Emile Dube		574 94
Rigaud	Post Office Building	Supply of coal	J. D. Smith	Feb. 23, 1911	150,700 00
Rimouski	Post Office	Construction of	Theodore Belanger	Sept. 7, 1910	215 89
Roberval	Public Building	Supply of coal	H. G. Lepage	Mar. 15, 1911	17,000 00
Sherbrooke	Post Office	Construction of	L. B. Lachance	Sept. 9, 1910	165 51
Sorel	"	Supply of coal	La Cie Coderre & Son	Feb. 21, 1911	16,700 00
St. Henri (Montreal)	Post Office	"	Alfred Lavallee	Sept. 8, 1910	360 13
St. Henri (Montreal)	Public Building	Alterations and additions to	J. Jacob & Co	Sept. 9, 1910	330 00
St. Hyacinthe	Public Building	Supply of coal	Lackawanna Coal Co	Jan. 30. 1911	4,890 00
"	Inland Revenue Building	Supply of coal	A. Cadorette	Sept 26, 1910	115 20
St. Jerome	Public Building	"	A. Cadorette	Sept.21, 1910	140 88
St. Johns	Old Post Office	"	S. J. Laviolette	Sept. 21, 1910	141 82
"	New Post Office	"	John Donaghy	Sept. 20, 1910	216 00
			John Donaghy	Sept. 16, 1910	.....
				Sept. 16, 1910	194 36

No. 1.—Contracts let by the Department of Public Works of Canada, &c.—*Continued.*

Works.			Names of Contractors.	Date of Contract.	Amount.
					$ cts.
Public Buildings.					
Quebec—Con.					
St. Johns	Post Office	Extension &c., to	B. Mooney & son	April 16, 1910	410 00
St. Louis du Mile End	Public Building	Supply of coal	Lackawanna Coal Co	Sept. 26, 1910	192 77
" "	Post Office	Alterations, &c., to	N. Allard & son	Dec. 2, 1910	4,600 00
Terrebonne	"	Supply of coal	Calixte Gauvreau	Sept. 13, 1910	111 00
Thetford Mines	"	Painting and kalsomining	Sansoucy & Co	Aug. 10, 1910	290 00
"	Public Building	Supply of coal	Alphonse Blais	Sept. 13, 1910	158 86
"	Post Office	Alterations, &c., to fittings	J. S. Hebert	Mar. 23, 1911	938 00
Three Rivers	Public Building	Supply of coal	Elzear Delisle	Oct. 25, 1910	202 84
Valleyfield	"	"	Besner & Chasle	Sept. 9, 1910	328 97
Victoriaville	"	"	Oct. Gaudet	Sept. 22, 1910	161 92
Ontario.					
Alexandria	Post Office	Supply of coal	Angus McDonald & son	Sept. 22, 1910	167 13
Almonte	"	"	Taylor Bros	Sept. 21, 1910	183 05
Amherstburg	"	"	Falls Bros	Sept. 17, 1910	166 40
Arnprior	"	"	J. S. Muir	Sept. 27, 1910	248 65
Barrie	"	"	The Sargeant Co., Ltd	Sept. 17, 1910	172 50
Belleville	"	"	The F. S. Anderson Co	Sept. 19, 1910	552 50
Bowmanville	"	"	McClelland & Co., Ltd	Sept. 17, 1910	155 25
Brampton	"	"	J. Pickering	Sept. 29, 1910	193 70
Brantford	"	"	Wilson Coal Co	Sept. 19, 1910	428 96
Bridgeburg	"	"	Mrs. Isaac White	Sept. 20, 1910	155 00
Brockville	"	"	The Central Canada Coal Co	Sept. 26, 1910	378 00
Carleton Place	"	"	Taylor Bros	Sept. 21, 1910	126 00
Chatham	"	"	A. R. Crowe	Sept. 23, 1910	206 62
Clinton	"	"	Jas. Hamilton	Sept. 22, 1910	212 21
Cobourg	"	"	George Plunkett	Sept. 17, 1910	224 87
Cornwall	"	"	A. F. Mulhern & Co	Sept. 17, 1910	260 00
Deseronto	"	"	The Rathbun Co	Sept. 17, 1910	280 00
Dundas	"	"	James A. Sturrock	Sept. 17, 1910	44 50
Elora	Post Office Building	Construction of	M. J. Whelan & E. A. Bleakney	Sept. 3, 1910	12,949 00
"	Public Building	Interior fittings	Office Specialty Mfg. Co., Ltd	Mar. 10, 1911	775 00

Fergus	Post Office Building	Construction of	M. J. Whelan & E. A. Bleakney	Sept. 3, 1910	13,449 00
"	Public Building	Interior fittings	Office Specialty Mfg. Co., Ltd	Mar. 10, 1911	775 00
Fort William	Post Office	Supply of coal	James Murphy	Sept. 17, 1910	513 00
Galt	"	"	J. D. Burns	Sept. 20, 1910	186 60
"	"	Elec. wiring and fittings	Scott & Bennett	Dec. 12, 1910	988 00
Gananoque	Custom House	Supply of coal	Taylor & Green, Coal & Lumber Co	Sept. 21, 1910	159 60
"	Post Office	"	Taylor & Green, Coal & Lumber Co	Sept. 21, 1910	107 95
Glencoe	Public Building	"	J. E. Hurst	Sept. 26, 1910	71 50
Goderich	"	"	F. Berlow Holmes	Sept. 17, 1910	228 31
"	Post Office	Alterations and additions to	Nagle & Mills	Nov. 18, 1910	7,023 00
Guelph	Public Building	Supply of coal	M. F. Cray	Sept. 16, 1910	478 88
Hamilton	"	"	The Connel Anthracite Mining Co	Sept. 22, 1910	1,059 60
"	Examining Warehouse	"	The Connel Anthracite Mining Co	Sept. 22, 1910	
"	Weights & Measures & Gas Inspector's Office	"	The Connell Anthracite Mining Co	Sept. 22, 1910	
Harriston	Public Building	Construction of	Geo. A. Proctor	Mar. 31, 1911	18,943 00
Hawkesbury	"	Supply of coal	F. X. Berthiaume	Sept. 17, 1910	194 13
Ingersoll	"	"	Scott & Daniel	Oct. 28, 1910	229 00
"	"	"	W. Ross	Oct. 28, 1910	
Kenora	"	"	D. E. Adams Coal Co., Ltd	Sept. 26, 1910	147 00
					440 85
Kincardine	"	"	John Adams	Sept. 7, 1910	288 95
Kingston	Custom House	"	P. Walsh	Sept. 15, 1910	349 35
"	Post Office	"	P. Walsh	Sept. 15, 1910	411 00
"	Inland Revenue Building	"	P. E. Walsh	Sept. 15, 1910	369 90
Leamington	Post Office Building	Fittings	The J. T. Schell Co	Apl. 23, 1910	1,489 00
"	Public Building	Supply of coal	Ed. Smith	Oct. 30, 1910	236 25
"	"	Completion of	W. H. Pulleyblank	Nov. 25, 1910	3,900 00
"	"	Heating apparatus	A. E. Law	Nov. 14, 1910	1,075 00
Lindsay	"	Supply of coal	Jos. Maunder & son	Sept. 22, 1910	95 00
"	"	"	McLennan & Co	Sept. 22, 1910	96 50
"	Post Office	Fittings	The Deisenroth Contracting Co	March 14, 1911	1,727 00
London	Custom House	Supply of coal	The Connell Anthracite Mining Co	Sept. 22, 1910	
"	Post Office	"	The Connell Anthracite Mining Co	Sept. 22, 1910	
"	Addition to Military Stores Building		John Purdom	Mar. 22, 1911	2,182 00
Markham	Public Building	Supply of coal	G. W. Reesor	Oct. 5, 1910	14 40
Mitchell	Public Building	Construction of	John Avery	Mar. 24, 1911	21,195 00
Mount Forest	"	Construction of	Geo. A. Proctor	Feb. 20, 1911	17,666 00
Napanee	"	Supply of coal	J. R. Dafoe	Sept. 19, 1910	227 80
Niagara Falls	"	"	J. E. Hutchings & Co	Sept. 19, 1910	211 44
"	"	"	W. E. Thomas	Sept. 19, 1910	28 90
"	Armoury	Construction of	H. B. Robertson	Oct. 3, 1910	44,000 00
North Bay	Public Building	Supply of coal	J. F. Devine	Sept. 21, 1910	362 24
Orangeville	"	"	Lathwell & son	Sept. 17, 1910	173 33
Orillia	"	"	H. A. Raneys & Co	Oct. 24, 1910	231 11
Oshawa	"	"	D. Drew & son	Sept. 21, 1910	63 00
"	"	"	E. N. Lander	Sept. 21, 1910	63 00
"	"	"	David Keith	Sept. 21, 1910	63 00
Ottawa	Military Stores Building	Restoration of	W. H. McGillivray & J. O. Toole	May 17, 1910	27,393 00
"	Military Stores Building	Freight hoist	Otis Fenson Elevator Co., Ltd	May 11, 1910	3,30 00

No. 1.—Contracts let by the Department of Public Works of Canada, &c.—*Continued.*

Works.			Names of Contractors.	Date of Contract.	Amount.
					$ cts.
Public Buildings.					
Ontario.					
Ottawa	Public Buildings	Supply of coal	John Heney & son	June 10, 1910	69,111 93
"	East Block	Addition to	Doran & Devlin	July 7, 1910	222,800 00
"	Parliament Hill	Asphalt surface for roadway	Ottawa Construction Co.	July 12, 1910	5,000 000
"	Public Buildings	Supply of ice	Mary Daoust	Aug. 8, 1910	15½c. per 100 lbs
"	House of Commons	Supplying and laying of rubber tiling for Reading Room	Ahearn & Soper, Ltd.	Aug. 17,1910	$1.75 per ft.
"	Langevin Block	Hot Water Boilers	P. J. Powers Co., Ltd	Aug. 19, 1910	1,750 00
"	Experimental Farm	Supply of coal	The C. C. Ray Co	Sept. 8, 1910	1,392 30
"	Observatory	"	The C. C. Ray Co	Aug. 8, 1910	180 00
"	Post Office	Fittings	R. A. Sproule	Oct. 17, 1910	3,180 00
"	Military Stores Building	Sundry works	W. H. McGillivray & J. O. Toole	Oct. 19, 1910	4,589 01
"	Testing Laboratory		Aug. Boehmer	Nov. 23, 1910	4,400 00
"	Victoria Memorial Museum	Metallic fittings for library	The Office Specialty Mfg. Co., Ltd	Dec. 12, 1910	10,485 00
"	Public Buildings	Winter supply of ice	Geo. Kingsbury	Dec. 7, 1910	$2 per mo. daily supply of 10 lb
"	Military Stores Building	Interior fittings	E. P. McGrath & Co.	Jan. 24, 1911	3,875 00
"	Langevin Block	Four boilers for	P. J. Powers Co., Ltd	Mar. 25, 1911	1,750 00
"	Victoria Mem. Museum	Sculpture galleries in partitions &c.	Geo. Goodwin	Mar. 3, 1911	8,000 00
Owen Sound	Public Building	Supply of coal	Oliver & Webster	Sept. 23, 1910	431 99
Paris	Post Office	"	G. E. Taylor	Sept. 20, 1910	
Parkhill	Public Building	Interior fittings	The J. T. Schell Co.	May 31, 1910	815 00
Pembroke	"	Supply of coal	Dunlop & Co	Sept. 17, 1910	257 89
Peterborough	Custom House	"	The Peterboro Fuel & Cartage Co., Ltd	Sept. 26, 1910	181 38
"	Post Office	"	The W. Scott Co., Ltd	Sept. 21, 1910	253 93
"	"	Addition to	Rose & Hickey	Feb. 15, 1911	8,200 00
Petrolea	Public Building	Supply of coal	Parker Coal Co	Sept. 24, 1910	225 16
Pieton	"	"	Hepburn Bros.	Sept. 24, 1910	231 00
Port Arthur	"	"	Louis Walsh Coal Co.	Sept. 29, 1910	280 00
Port Hope	"	"	G. N. Patterson	Sept. 22, 1910	264 00
Prescott	Custom House	"	James Buckley	Sept. 19, 1910	152 50
"	Post Office	"	James Buckley	Sept. 19, 1910	122 00
Sarnia	Public Building	"	W. A. Brown	Sept. 21, 1910	299 95
Sault Ste. Marie	"	"	The Superior Dock Coal & Metal Co	Sept. 27, 1910	90 00

Smiths Falls	"	"	Foster & Co.	Sept. 19, 1910	179 28
Stratford	"	"	Andrew Johnston & son	Oct. 7, 1910	375 50
Strathroy	"	"	R. W. Nicholson	Oct. 8, 1910	253 50
St. Marys	"	"	James Armstrong	Sept. 24, 1910	243 50
St. Thomas	"	"	M. Scarrow	Sept. 17, 1910	288 00
Tilsonburg	Public Building	Construction of	The Schultz Bros. Co., Ltd	Mar. 28, 1911	24,801 00
Toronto	Post Office (Addition)	Elec. Elevator	Otis Fensom Elevator Co., Ltd	July 15, 1910	3,480 00
"	Custom House	Supply of coal	The Connell Anthracite Mining Co	Sept. 22, 1910	695 41
"	Exg. Warehouse	"	" "	Sept. 22, 1910	973 62
"	Post Office	"	" "	Sept. 22, 1910	1,069 57
"	Postal Station "C"	"	" "	Sept. 22, 1910	100 65
"	"	"	" "	Sept. 22, 1910	105 84
"	"	"	" "	Sept. 22, 1910	277 24
"	Revenue Office	"	" "	Sept. 22, 1910	234 46
"	Custom House	"	The Elias Rogers Co., Ltd	Sept. 23, 1910	59 97
"	Exg. Warehouse	"	"	Sept. 22, 1910	95 76
"	Central Post Office	Fittings	E. P. McGrath & Co	Jan. 24, 1911	12,125 00
"	Postal Station "B"	Interior fittings	The Deisenroth Contracting Co	Mar. 14, 1911	1,132 00
"	Examining Warehouse	Alterations, &c. to	Samuel Young	Mar. 10, 1911	11,695 00
Trenton	Public Building	Supply of coal	T. W. Jacques	Sept. 17, 1910	250 00
Waterloo	Public Building	Construction of	L. B. Lachance	Oct. 3, 1910	36,975 00
Walkerton	"	Supply of coal	S. W. Vogan	Oct. 5, 1910	185 93
Welland	"	"	Samuel L. Lambert	Oct. 19, 1910	108 42
Whitby	"	"	J. H. Downey & Co	Sept. 23, 1910	174 82
Windsor	Post Office	Fittings	E. P. McGrath & Co	May 12, 1910	1,695 00
Wingham	Public Building	Supply of coal	Richardson & Rae	Sept. 19, 1910	207 35
Woodstock	"	"	The McIntosh Coal Co., Ltd	Sept. 17, 1910	270 00

Manitoba.

Brandon	Experimental Farm	Supply of coal	Barclay & O'Hara	Oct. 14, 1910	128 02
"	Post Office	"	"	Oct. 14, 1910	881 29
"	Experimental Farm	"	T. E. Elvis	Oct. 14, 1910	44 64
"	Post Office	"	T. E. Elvis	Oct. 14, 1910	102 15
"	Immigration Building	"	J. F. Armstrong & Company	Oct. 14, 1910	109 42
Dauphin	Public Building	"	Thomas Jordan	Sept. 26, 1910	839 77
Emerson	Post Office	"	D. E. Adams Coal Co., Ltd	Sept. 26, 1910	47 50
"	"	"	Windatt & Company	Sept. 26, 1910	255 97
Neepewa	"	"	Windatt & Company	Sept. 26, 1910	281 33
Portage la Prairie	Public Building	"	A. W. Humber	Sept. 20, 1910	312 70 352 13 160 10
Selkirk	Post Office	"	Thomas Reid	Sept. 20, 1910	552 20
Souris	Post Office building	Construction of	M. A. Piggott & Son	Oct. 12, 1910	21,500 00
St. Boniface	Post Office	Supply of coal	Harstone Bros	Oct. 12, 1910	433 43
Winnipeg	Customs and Savings Bank Offices.	Fittings	The Berlin Interior Hardwood Co., Ltd	Aug. 27, 1910	7,435 00
"	Examining Warehouse	Fittings	The J. T. Schell Company	Oct. 7, 1910	5,594 00
"	Immigration Hall	Supply of coal	Harstone Bros	Oct. 12, 1910	3,577 32
"	Custom House	"	"	Oct. 12, 1910	203 23

No. 1.—Contracts let by the Department of Public Works of Canada, &c.—*Continued.*

Works.		Names of Contractors.	Date of Contract.	Amount.
				$ cts.
Public Buildings—*Continued.*				
Manitoba—Con.				
Winnipeg	Examining Warehouse.....Supply of Coal	Harstone Bros	Oct. 12, 1910	1,320 28
				200 61
"	Post Office Station "B"..... "	"	Oct. 12, 1910	—
"	Immigration Hall No. 2..... "	D. E. Adams Coal Co., Ltd	Oct. 12, 1910	
"	Immigration Hospital No. 3... "	"	Oct. 12, 1910	214 20
"	Post Office (old building)..... "	"	Oct. 12, 1910	1,419 60
				946 30
"	Post Office (new building)..... "	Harstone Bros	Oct. 20, 1910	3,721 20
"	Examining Warehouse.....Additional partitions, heating and elevator enclosures.	McDiarmid & Co	Oct. 26, 1910	4,700 00
Saskatchewan.				
Battleford	Public Building.....Construction of	M. A. Pigott & Son	Oct. 23, 1910	26,735 00
Estevan	Public Building.....Supply of coal	Duncan Moulton Co., Ltd	Oct. 25, 1910	244 15
Indian Head	Experimental Farm..... "	Hunter, Cantalon & Company	Sept. 20, 1910	315 00
"	Forest Nursery Station..... "	"	Sept. 20, 1910	555 75
Lloydminster	Immigration Hall..... "	James Vincent	Sept. 21, 1910	1,356 00
				393 25
Maple Creek	Public Building..... "	Dixon Bros	Dec. 2, 1910	100 87
Moosejaw	Immigration Building..... "	D. E. Adams Coal Co., Ltd	Sept. 26, 1910	37 38
"	Public Building..... "	Hitchcock & McCulloch	Sept. 20, 1910	376 25
Prince Albert	Post Office..... "	Robert Stanley	Oct. 24, 1910	859 16
Regina	" "	Whitmore Bros	Sept. 19, 1910	1,421 75
"	Dominion Land Office..... "	"	Sept. 19, 1910	496 25
"	Immigration Building..... "	"	Sept. 19, 1910	169 75
"	Post Office..... "	The Smith Ferguson Co., Ltd	Sept. 19, 1910	157 21
"	Dominion Land Office..... "	"	Sept. 19, 1910	40 00
"	Immigration Building..... "	"	Sept. 19, 1910	73 48
Saskatoon	Public Building..... "	The Spicer Willoughby Coal Co	Sept. 19, 1910	652 50
"	" "	"	Sept. 19, 1910	
Yorkton	Public Building..... "	C. Windatt & Company	Sept. 26, 1910	371 13

Alberta.					
Calgary	Immigration shed	Supply of coal	W. Stuart & Company	Sept. 21, 1910	4 50
					91 35
"	Post Office	"	"	Sept. 21, 1910	31 50
"	"	"	C. S. Lott	Sept. 27, 1910	1,786 37
Edmonton	Old Post Office	"	Western Coal Company	Sept. 24, 1910	185 92
"	Immigration Building	"	"	Sept. 24, 1910	175 75
"	Public Building	"	"	Sept. 24, 1910	735 07
Lethbridge	Public Building	"	New Barnes Coal Company	Oct. 12, 1910	310 00
"	Immigration Building	"	"	Oct. 12, 1910	183 00
"	Post Office	"	C. S. Lott	Oct. 12, 1910	77 38
"	Immigration Building	"	"	Oct. 12, 1910	42 50
McLeod	Custom House	"	R. H. Hilliard	Sept. 27, 1910	71 01
"	"	"	George Skelding	Dec. 29, 1910	52 72
Strathcona	Immigration Building	"	The Dawson Co., Ltd	Sept. 27, 1910	206 33
British Columbia.					
Nanaimo	Public Building	Alterations and additions to	Alex. Henderson	Dec. 22, 1910	23,441 00
Prince Rupert	Hospital Building	Quarantine station	P. W. Anderson and D. A. McKinnon	Mar. 9, 1910	18,750 00
Vernon	Public Building	Construction of	W. A. Cryderman	May 12, 1910	29,950 00
"	"	Alterations to	"	Oct. 18, 1910	5,250 00
"	Post Office, Customs and land Revenue building.	In-Fittings to	The Berlin Interior Hardwood Co., Ltd	Mar. 24, 1911	2,820 00
HARBOURS AND RIVERS.					
Nova Scotia.					
Annapolis Royal	Two ice piers	Construction of	E. R. Reid	Mar. 27, 1911	37,300 00
Arichat	Wharf and warehouse	Construction of	W. J. Landry	July 17, 1910	16,176 00
Barrington Cove	Wharf		J. N. Dobson	Nov. 28, 1910	29,900 00
Big Lorraine	Dredging		W. P. Cann and L. McLean	July 20, 1910	Sched. of prices
Black Point	Breakwater	Construction of	A. W. Girroir and K. Sweet	Nov. 26, 1910	7,166 00
Blue Rocks	Breakwater at entrance	Construction of	T. D. Morrison	July 29, 1910	7,875 00
Burke's Head (North Ingonish).	Breakwater	Construction of	A. W. Girroir and K. Sweet	Jan. 9, 1911	35,490 00
Chapel Cove	"	"	W. J. Landry	Feb. 24, 1911	11,148 00
Cribbins Point	Dredging		Beazley Bros., Ltd	July 15, 1910	Sched. of prices
Delorey's Beach	Breakwater	Construction of	D. McIsaac and A. McIsaac	Feb. 21, 1911	6,255 00
Digby	Dredging		Beazley Bros., Ltd	June 20, 1910	Sched. of prices
Dover	Wharf		A. W. Girroir and K. Sweet	Sept. 29, 1910	3,836 00
Dublin Shore	Breakwater	Construction of	T. D. Morrison	July 29, 1910	10,690 00
Duncan's Cove	"	"	A. W. Girroir and K. Sweet	Jan. 9, 1911	6,960 00
Grand Etang	Dredging		V. T. Bartram	July 20, 1910	Sched. of prices
Halifax County	Dredging		Beazley Bros., Ltd	Oct. 11, 1910	"
Harbour au Bouche	Dredging		"	Oct. 22, 1910	"
Joggins	Breakwater	Extension to	S. J. Reid	July 29, 1910	8,400 00
Kingsport	Public pier	"	H. MacAloney	July 28, 1910	10,695 00

No. 1.—Contracts let by the Department of Public Works of Canada, &c.—*Continued.*

Works.	Names of Contractors.	Date of Contract.	Amount.
			$ cts.
Harbours and Rivers.—*Continued.*			
Nova Scotia.			
La Have River.....Dredging	The W. J. Poupore Co., Ltd	June 11, 1910	Sched. of prices
Leitche's Creek.....Wharf	R. Musgrove & Son and Bart. Musgrove	Feb. 17, 1911	5,582 00
Liscomb.....Hemlow wharf.....Reconstruction and extension of	W. E. Landry	Aug. 3, 1910	2,200 00
Little River.....Public breakwater.....Construction of	Leo. Melanson	Nov. 15, 1910	14,900 00
Little Tancook (1s'd) " "	W. J. Landry	Aug. 15, 1910	22,000 00
Lunenburg.....Dredging	The W. J. Poupore Co., Ltd	Nov. 16, 1910	Sched. of prices
Mahone..... "	Beazley Bros., Ltd	Oct. 22, 1910	"
Margaree Harbour...Breakwater.....Construction of	R. Musgrove & Son and Bart. Musgrove	Mar. 22, 1911	5,300 00
New Edinburg..... " "	J. E. & H. Bigelow	Nov. 29, 1910	11,900 00
Petit de Grat.....Dredging	The W. J. Poupore Co., Ltd	June 11, 1910	Sched. of prices
Port Felix.....Wharf and road.....Construction of	A. W. Girroir and K. Sweet	Sept. 29, 1910	4,309 00
Shelburne.....Public Wharf.....Construction of	F. A. Ronnan and Co. and D. Stewart & Son	Oct. 12, 1910	24,790 00
South Ingonish.....Construction of and raising the outer end of wharf	Robt. Musgrove & Son and Bart Musgrove	Jan. 21, 1911	5,100 00
Three Fathom Harbour....Beach Protection work	Obed A. Ham	Jan. 11, 1911	7,848 00
West Dublin.....Dredging	The W. J. Poupore Co., Ltd	Aug. 2, 1910	Sched. of prices
Westport.....Pile work pier at.....Construction of	D. W. B. Reid and L. Archibald	Feb. 15, 1911	16,670 00
Yarmouth.....Dredging	The Dominion Dredging Co., Ltd	June 14, 1910	Sched. of prices
Yarmouth (Sollows Shoal).....Dredging	Maritime Dredging & Construction Co	June 24, 1910	"
Yarmouth.....Dredging	The Dominion Dredging Co., Ltd	Nov. 8, 1910	"
Prince Edward Island.			
Lennox Island.....Wharf.....Construction of	T. E. Ramsay and R. McNeill	July 30, 1910	1,950 00
Miminegash.....Construction of new block at outer end of northern breakwater	J. T. Reid	Sept. 29, 1910	3,337 00
Port Hill.....Wharf.....Construction of	T. E. Ramsay and R. McNeill	Aug. 3, 1910	4,554 00
Rustico Harbour.....Reconstruction of portions of breakwater	Andrew Martin	Aug. 30, 1910	6,775 00
Souris.....Supply of stone and placing same along breakwater	F. S. Macdonald	July 20, 1910	$3.45 per cu. yd.
Tracadie Harbour....Breakwater.....Construction of	F. D. McDonald	Aug. 24, 1910	24,540 00

New Brunswick.					
Caraquet	Dredging		The W. J. Poupore Co., Ltd	Aug. 31, 1910	Sched. of prices
Dalhousie	Dredging		A. and R. Loggie	July 30, 1910	"
Dipper Harbour	Extension to breakwater		Thos. P. Charleson	Dec. 22, 1910	22,350 00
Great Salmon River	Breakwater	Construction of	C. A. Huutley	Dec. 2, 1910	10,740 00
Miramichi Bay	Dredging		The W. J. Poupore Co., Ltd	Aug. 22, 1910	Sched. of prices
Miramichi Bay (Grand Dune Flats)	Dredging		The Eastern Dredging Co., Ltd	Oct. 14, 1910	"
Miscou	Public wharf	Construction of	E. R. Reid	July 12, 1910	16,840 00
New Mills	Wharf		Warren Taylor	Jan. 18, 1911	11,480 00
Oromocto	Dredging		J. S. Gregory	June 15, 1910	Sched. of prices
Patridge Island	Wharf (quarantine purposes)		James E. Kane	May 11, 1910	13,448 00
Pointe du Chene	Dredging		The General Construction & Dredging Co. Ltd	July 2, 1910	Sched. of prices
Shediac	Wharf	Construction of	John Burns and T. P. Charleson	June 23, 1910	20,690 00
St. Andrews	Dredging		The Dominion Dredging Co., Ltd	July 6, 1910	Sched of prices..
St. Leonard's and Van Buren, U.S.A.	Superstructure of a four span highway bridge over St. John River, between St. Leonard's and Van Buren		Penn. Bridge Co	Sept. 29, 1910	40,991 00
St. Leonards (St. John, N.B.)—Substructure of Intercolonial bridge between Van Buren and St. Leonards.			E. F. Powers and H. H. Brewer	Sept. 28, 1910	*23,895 50
Quebec.					
Angers	Public Wharf	Construction of	J. H. & H. R. Murphy	July 26, ...	5,390 00
Aylmer	"	Construction of	J. & T. Moran	Nov. 4, 1910	8,974 00
Batiscan River	Dredging		Dufresne & Marchildon	May 21, 1910	Sched. of prices.
"	"		Dufresne & Marchildon	Aug. 19, 1910	Sched of prices..
Beauharnois	"		H. M. Connolly	June 16, 1910	Sched. of prices.
Berthierville	"		L. Cohen & son	July 12, 1910	Sched. of prices.
Bic	Wharf	Construction of	Theophile Beaumont	Nov. 24, 1910	33,810 00
Bonaventure River	Dredging		Chas. Lemoine	Aug. 2, 1910	Sched. of prices.
"	Extension to training pier		R. N. LeBlanc	Dec. 14, 1910	13,900 00
Gaspe Basin	Landing pier. &c	Construction of	Horace Dussault	Apl. 29, 1910	273,985 00
Green Shoals (Ottawa River)	Dredging		L. Cohen & Son	July 26, 1910	Sched. of prices.
L'Assomption	Concrete ice pier	Construction of	Joseph Renaud	Dec. 3, 1910	4,910 00
Levis	Deep water wharf	Construction of	Horace Dussault	Aug. 8, 1910	283,064 50
Maria (Bonaventure)	Extension to wharf		Peter Nadeau & sons	July 29, 1910	11,993 35
Matane	Breakwater	Construction of	Nap. Trudel	Aug. 29, 1910	55,02100
Montmagny	Dredging		L. Cohen & son	Aug. 24, 1910	Sched. of prices.
Montmagny	Extension to wharf		J. Elz. Boulanger	Oct. 10, 1910	5,250 00
Natashquan	Wharf		G. R. Phillips	Sept. 1, 1910	17,250 00
New Richmond	Extension to wharf		John Burns	Aug. 8, 1910	5,933 00
Nicolet River	Dredging		L. Cohen & son	July 12, 1910	Sched. of prices.
Paspebiac (East)	Breakwater		Peter Nadeau & sons	Dec. 14, 1910	15,719 73
Quebec Harbour	Dredging		The Dominion Dredging Co., Ltd	June 4, 1910	Sched. of prices.
River des Prairies	Reconstruction of piers		Morrow & Beatty	Dec. 9, 1910	8,520 00
River du Loup en haut	Dredging		The W. J. Poupore Co., Ltd	June 10, 1910	Sched. of prices.
River du Loup (en bas	"		The W. J. Poupore Co., Ltd	Aug. 2, 1910	Sched. of prices.
River Ouareau	Concrete ice pier		Joseph Renaud	Nov. 2, 1910	2,478 00

* Half payable by Dominion Government and half by the State of Maine.

No. 1.—Contracts let by the Department of Public Works of Canada, &c.—*Continued.*

Works.	Names of Contractors.	Date of Contract.	Amount.
			$ cts.
Harbours and Rivers.—*Continued.*			
New Brunswick,			
River Saguenay.....Dredging	Continental Dredging Co	Aug. 15, 1910	Sched. of prices.
River St. Charles.... "	Horace Dussault	Aug. 8, 1910	Sched. of prices.
River St. Francis.... "	The W. J. Poupore Co., Ltd	June 15, 1910	Sched. of prices.
River St. Maurice.... "	Antoine St. Pierre	May 16, 1910	Sched. of prices.
River Yamachiche... "	The T. F. Moore Co	Aug. 23, 1910	Sched. of prices.
Shigawake.....Extension to present wharf	Thos. P. Charleson	Mar. 11, 1911	9,385 00
Sorel.....Breakwater.....Construction of	D. G. Stewart	Aug. 9, 1910	6,350 00
Sorel.....Extension to High Level wharf	Estate of J. E. Beauchemin	Jan. 26, 1911	8,500 00
Stratford.....Landing pier.....Construction of	J. A. McLaughlin & Pat. McLaughlin	Jan. 28, 1911	5,975 00
St. Alexis.....Extension and repairs to wharf	Johnny Girard	July 14, 1910	13,395 96
St. Andrews.....Wharf.....Construction of	The Bridge and Wharf Builder Co	Nov. 14, 1910	3,245 00
St. Charles de CaplinExtension to wharf	John Burns & T. P. Charleson	May 31, 1910	14,933 00
St. Croix.....Landing pier.....Construction of	O. Poliquin	Dec. 5, 1910	22,000 00
St. Emillie (Leclercville).....Isolated Block, &c.....Construction of	J. A. Lemay	June 27, 1910	27,700 00
St. Francois du Lac..Dredging	La Compagnie Industrielle de Sorel	June 8, 1910	Sched. of prices.
St. Joseph de Letellier (Saguenay).....Wharf	Nap. Warren	Jan. 9, 1911	18,900 00
St. Joseph de Sorel...Landing pier	Joseph Cardin	Dec. 15, 1910	9,250 00
St. Pierre les Becquets.....Dredging	L. Cohen & son	July 12, 1910	Sched. of prices.
Tadousac Harbour...Wharf and approach.....Construction of	Nap. Warren	July 18, 1910	31,795 00
Three Rivers.....Timber Dock and Ice Breakers Construction of	J. J. Collins & W. V. Giroux	May 18, 1910	142,900 00
Valleyfield.....Dredging	The General Construction Co., Ltd	Aug. 6, 1910	Sched of prices..
Verdun..... "	James Lorrain & W. C. Leitch	Aug. 16, 1910	Sched. of prices.
Yamaska..... "	The W. J. Poupore Co., Ltd	June 10, 1910	Sched. of prices.
Ontario,			
Brockville.....Pier.....Construction of	Samuel Gowan	Oct. 4, 1910	6,500 00
Byng Inlet.....Dredging	Manley & Co	June 13, 1910	Sched. of prices.
Cobourg..... "	The Randolph Macdonald Co., Ltd	May 23, 1910	Sched. of prices.
Colchester.....Pier.....Extension to	Michael, Matthew and Patrick O'Leary	Oct. 29, 1910	$14,500(00
Colpoy's Bay.....Breakwater..... "	Gideon Kastner and D. Porter	Nov. 3, 1910	13,990 00

Five Miles or Cameron Narrows	Dredging	The C. S. Boone Dredging & Construction Co. Ltd	July 21, 1910	Sched. of prices.
Goderich	Dredging	W. L. Horton	June 1, 1910	" "
*Goderich	Breakwater	Construction of	Michael Connolly	Dec. 1, 1910	140,417 00
Gravenhurst	Wharf and stone approach	"	D. G. Stewart	Feb. 16, 1911	12,984 00
Hamilton	Construction of wharf and two retaining walls		Joseph Battle	Jan. 18, 1911	60,844 00
Kincardine	Dredging		Dredging & Drainage Co. of Ontario, Ltd	June 9, 1910	Sched. of prices.
Lake Nipissing (French River)	Dam and sluiceways	Construction of	John F. Boyd	Feb. 10, 1911	13,365 00
Lakeport	Reconstruction of wharf		Samuel Gowan	Nov. 7, 1910	16,430 00
Lion's Head	Dredging		Dredging & Drainage Co. of Ontario, Ltd	June 9, 1910	Sched. of prices.
Michipicoten River	Wharf	Construction of	D. G. Stewart	Mar. 22, 1911	18,430 00
Owen Sound	Dredging		R. Weddell & Co	June 22, 1910	Sched. of prices.
Pelee Island	North wharf	Extension to	Donald McDermid	Oct. 24, 1910	13,000 00
Picnic Island	Dredging		The C. S. Boone Dredging & Construction Co., Ltd	June 11, 1910	Sched. of prices.
Port Arthur and Fish Dock and Thunder Bay	Dredging		W. E. Phin	May 23, 1910	Sched. of prices.
Port Burwell	Dredging		The General Construction & Dredging Co. Ltd	June 1, 1910	Sched. of prices.
Port Burwell	Breakwater	Construction of	M. J. Hogan	Mar. 30, 1911	157,500 00
Port Elgin	Dredging		Dredging & Drainage Co. of Ontario, Ltd	June 9, 1910	Sched. of prices.
Port Hope	"		W. E. Phin	June 8, 1910	" "
Providence Bay	Construction of extension to existing wharf		Chas. H. Sherwood	Dec. 13, 1910	15,438 00
Rainy River	Dredging		A. F. Bowman	July 29,	Sched. of prices.
"	"		"	Nov. 9, 1910	" "
Rondeau	"		The Windsor Dredging Co., Ltd	June 17, 1910	" "
Rondeau Harbour	"		" " "	Nov. 8, 1910	" "
Sault Ste Marie	Extension to wharf		John F. Boyd	July 16, 1910	16,400 00
Spanish River	Dredging		The C. S. Boone Dredging & Construction Co., Ltd	June 27, 1910	Sched. of prices.
Telegraph Island	"		R. Weddell & Co	April 20, 1910	" "
Thames River	"		W. E. Phin	July 7, 1910	" "
Tiffin	"		Canadian Dredge & Construction Co., Ltd	April 21, 1910	" "
Victoria Harbour	"		" " " "	April 21, 1910	" "
Victoria Harbour	"		" " " "	Nov. 9, 1910	" "
Waubaushene	"		Penetanguishene Dredging Co	Sept. 26, 1910	" "
Welland River (Chippewa Creek)	Dredging		John E. Russell	Aug. 1, 1910	" "
Welland River (Chippewa Creek)	Dredging		The General Construction & Dredging Co. Ltd.	Sept. 20, 1910	" "
Whitby	Dredging		W. E. Phin	June 8, 1910	" "
Wingfield	"		The C. S. Boone Dredging & Construction Co., Ltd	April 20, 1910	" "
Manitoba.					
Winnipeg Beach	Protection pier	Construction of	John Gunn & Sons	Dec. 12, 1910	19,192 00
Telegraph Lines.					
Transportation of supplies for Yukon Telegraph Line			Jean Caux	April 25, 1910	Sched. of prices.
Transportation of supplies for Yukon Telegraph Line			J. F. Callbreath	May 21, 1910	" "

*Contract re construction of Breakwater at Goderich transferred by O-C. to William Bermingham.

No. 1.—CONTRACTS let by the Department of Public Works of Canada, &c.—*Continued.*

Works.	Names of Contractors.	Date of Contract.	Amount.
Vessels—Dredges and Plant.			$ cts.
Construction of a Scotch Marine Return Tubular Boiler for Dredge "Ottawa"	The International Marine Signal Co., Ltd.	April 4, 1910	2,750 00
" 40 buckets and accessories for Dredge "W. S. Fielding"	The St. John Iron Works, Ltd.	April 26, 1910	16,800 00
" 2 Twenty (20) rock breakers, &c., for British Columbia	Lobnitz & Co., Ltd.	July 11, 1910	£6,600 each
" a steel Bow-Well twin screw barge loading dredge for Brit. Columbia	Wm. Simons & Co., Ltd.	Sept. 20, 1910	210,000 00
" 1 cubic yard dipper dredge for Prince Edward Island	J. Burns and W. Waters	Oct. 4, 1910	21,350 00
" a steel tug boat for British Columbia	McDougall Jenkins Engineers, Ltd.	Oct. 21, 1910	43,440 00
" double hoisting engines for new 2½ cub. yd. boom dredge	Chaudiere Machine & Foundry Co., Ltd.	Dec. 22, 1910	3,475 00
Supply of wood for dredge "Lac St. Jean"	C. Boulay and T. Ouelette	Jan. 10, 1911	1,317 50
Construction of gasoline motor tug boat for British Columbia	The Vancouver Ship Yard, Ltd.	Mar. 2, 1911	6,850 00
Construction of 2 one hundred and eighty (180) cub. yd. dump scows for British Columbia	Mayhew E. Choate & Ross & Howard Iron Works Co., Ltd.	Feb. 13, 1911	10,800 00
Transportation of cement from points on Lake Temiscaming to site of regulating dam near Quinze Lake	Geo. A. Rochester	Feb. 21, 1911	Sched. of prices.
Tug service for Government dredges "Montague" and "Prince Edward" for season 1911	The Island Tug Co., Ltd.	Mar. 18, 1911	$25 per day ea.
Construction of a steel tug boat for British Columbia	Wallace Shipyard, Ltd.	Mar. 28, 1911	64,950 00

STATEMEMT No. 2

PROPERTIES PURCHASED OR SOLD

No. 2.—STATEMENT of properties purchased or sold by the Department of Public Works of Canada, &c.

Date of Conveyance.	Vendors.	Purchasers.	Description of Property.	For what Purpose.	Area.	Price.
						$ cts.
April 1, 1910..	Jas. MacDonald *et uxor*.....	His Majesty....	Land at Bailey's Brook, N.S.....	Breakwater.....	1.49 acre.....	60 00
" 27, 1910..	A. McMann, *et uxor*.....	"	Lot No. 8, Neweastle Creek, N.B..... (Parish of Canning).	For right of way.....	1-6 acre.....	300 00
May 4, 1910..	The Dominion Dredging Co Ltd.	"	Bill of sale, Dredge "No. 3".....	Government purposes.....	.....	20,000 00
" 4, 1910..	" "	"	Bill of sale, Tug "Fashion".....	" "	.....	8,000 00
" 4, 1910..	" "	"	Sale of seows Nos. 1, 2, 3 and 4.....	" "	.....	13,500 00
" 12, 1910..	J. A. Gordon, *et uxor*.....	"	Land—Township 53, Brudenell, N.B.....	Wharf.....	.....	50 00
" 13, 1910..	His Majesty.....	C.L.Porter, *et al*	Land—Bridgewater, N. S.....	.....	.....	Ex. of land.
" 26, 1910..	C. Ida Mallette.....	"	Part of Lot No. 75, Rigaud, Que.....	Wharf.....	8,900 sq. feet.....	700 00
" 27, 1910..	His Majesty.....	John Reid.....	Lot No. 1, block 13, New Westminster, B.C.	Private enterprise.....	.....	45,000 00
June 3. 1910..	John R. Liddy *et uxor*.....	"	Lots Nos. 1, 2, 3, 4 and 5, Dundas, Ont..	Public building site.....	100 ft. x 125 ft.....	5,000 00
" 11, 1910..	Joseph Blais.....	"	Land—Chapeau village, Que.....	Approach to bridge.....	3,936 sq. feet.....	400 00
" 17, 1910..	Canadian Bk. of Commerce.	"	Part of Town Lot No. 48 and buildings thereon, Charlottetown, P.E.I.	Public building site.....	.....	8,500 00
" 18, 1910..	The Board of Education of Town of Paris.	"	Lot No. 12 and south half of Lot No. 13, Paris, Ont.	Armoury site.....	.....	4,000 00
" 25, 1910..	Jos. Adam Brown, *et uxor*...	"	Land, Durham, Ont.....	"	.....	150 00
July 5, 1910..	Ottawa Forwarding Co.,Ltd	"	Bill of sale, tug "Cliffside".....	Government purposes.....	.....	9,000 00
" 5, 1910..	William H. Biden and J. H. Fraser..	"	Lot No. 4, 1st Con. Township of Gore, Chatham, Ont.	For dredging and improvements, of River Sydenham, Ont.	1.97 acre.....	200 00
" 15, 1910..	S. S. McNeill.....	"	Land-Grass Cove, N.S.....	Wharf.....	¾ acre.....	25 00
" 18, 1910..	J. G. Tibert, *et uxor*.....	"	Land, Little River, N.S.....	Government purposes.....	..4,800 sq. feet....	50 00
" 20, 1910..	D. E. Cheney.....	"	Land, Little River, N.S.....	"	0.138 acre.....	40 00
" 20, 1910..	The Nova Scotia Steel and Coal Company, Ltd.	"	Land, Barrington's Cove, N.S.....	Wharf.....	3½ acres.....	500 00
" 21, 1910..	His Majesty.....	LaCie d'Expositionde laVallee du St. Laurent	Land, Three Rivers, P.Q.....	Private enterprise.....	.....	Free grant.
" 21, 1910..	O. Quesnal, *et al*.....	His Majesty....	Land, Montebello, P.Q.....	Approach to wharf.....	.....	Free grant.
" 22, 1910..	Mrs. Neol Mereille.....	"	Lots Nos. 113, 114, 115, and 116 St. Lambert, Que.	Public building site.....	200 ft. x 115 ft.....	4,140 00
" 24, 1910..	A. Maisonneuve.....	"	Land, Angers, Que.....	Approach to wharf.....	sup. area 26,450 ft, plus 1 acre.	Free grant.
" 27, 1910..	Ls. Eucher Charlebois.....	"	Part of Cadastral lot No. 82, Rigaud,Qu	Public building site.....	82 ft. x 143 ft.....	1,500 00
" 28, 1910..	R. R. Woods.....	"	Release, Lot No. 74, Latchford, Ont.....	.....	.....	100 00

"	30, 1910..	His Majesty	Tn.ofChicoutimi	Land, town of Chicoutimi, Que.	For civic purposes		Free grant.
"	30, 1910..	Chs. W. Jessup	His Majesty	Release, Lot No. 158, Latchford, Ont.			1,500 00
Aug.	1, 1910..	Elizabeth Sinclair	"	Lots Nos. 61 and 62 Port Perry, Ont.	Public building site		1,800 00
"	1, 1910..	Albert Ferris	"	Release, Lot No. 150, Latchford, Ont.	For dam		1,500 00
"	2, 1910..	Geo. W. Lee	"	Release, Lot N. 209, Latchford, Ont.	"		225 00
"	3, 1910..	Joseph Keefe, sr.	"	Land, Dover, N.S.	Wharf	4,598 sup. feet	50 00
"	3, 1910..	T. W. Little	"	Lots Nos. 194 & 199, Latchford, Ont.	For a dam		1,500 00
"	3, 1910..	T. W. Caley	"	Lot No. 202, Latchford, Ont.	"		225 00
"	10, 1910..	F. C. Grant and Mary Ann Crawford.	"	Lots Nos. 7, 8, and 9, Block 15, Melford, Sask.	Public building site		2,000 00
"	12, 1910..	J. H. Courtney	"	Lot No. 112, Latchford, Ont.	For a dam		100 00
"	12, 1910..	J. F. Kidd	"	Lots Nos. 103 and 113, Latchford, Ont.	"		200 00
"	13, 1910..	Alf. McEwan *et uxor*	"	Land, Merigomish (French Riv.), N.S.	Wharf	4 acres	100 00
"	13, 1910..	L. H. Rochester	"	Lots Nos. 62 and 73, Latchford, Ont.	For a dam		200 00
"	13, 1910..	Bert Cole	"	Lots Nos. 122, 131 & 140 Latchford, Ont.	"		350 00
"	13, 1910..	John B. White	"	Lots Nos. 52 and 63, Latchford, Ont.	"		200 00
"	22, 1910..	Christopher W. Bryant	"	Land, Township of Bolton, Que.	Right of way	30 ft. x 815 ft.	Free grant.
"	22, 1910..	Municipality of Potton	"	Wharf known as "Perkins Wharf," Que., being Lot No. 1063 with right of way to public road, Potton, Que.			Donation.
"	23, 1910..	H. C. Lisle and R. T. Holmes.	"	Lots Nos. 36, 37 and 38, block 13, Lloydminster, Sask.	Public building site	78 feet	5,000 00
"	23, 1910..	A. Carre & J. Tremblay	"	Part of lot No. 16, 1st Con., St. Fidele, Que.	Right of way, Govt. Teleg line.		50 00
"	23, 1910..	Thos. Green & Son	"	Part of Lot No. 14, 1st Con., St. Fidele, Que.	" "		75 00
"	23, 1910..	Hector Harvey	"	Parts of Lots No. 8 & 10, 1st Con., St. Fidele, Que.	" "		100 00
"	24, 1910..	Hugh Gillis, *et uxor*	"	Lots Nos. 1 & 2, McKay's Point (Judique) N.S.	For wharf	1 $\frac{7}{10}$ acre	718 00
"	25, 1910..	John S. Davis	"	Lot No. 123, Latchford, Ont.	For a dam		125 00
"	31, 1910..	M. Pre Bergeron	"	Lot No. 42, St. Michel, Yamaska, Que.	Pier	180 ft. x 270 ft.	500 00
Sept.	3, 1910..	Ralph H. Burton	"	South half of lot No. 178, Latchford, Ont	For a dam		1,600 00
"	13, 1910..	John G. Carr, *et uxor*	"	Three (3) parcels of land, Brighton, N.B.	Public building site		1,100 00
"	14, 1910..	Marcella Doiron	"	Land, Port Felix, N.B.	Wharf	14,380 sup. feet	100 00
"	15, 1910..	Ruben Hadley	"	Land, Oyster Pond, N.S.	Breakwater	1,180 sq. feet	40 00
"	15, 1910..	John W. Nelson, *et uxor*	"	Lots Nos. 20, 21 & 22, Block 5, Greenwood, B. C.	Public building site		3,000 00
"	16, 1910..	Town of Levis	"	Lots Nos. 714, 715, 716, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 734, 735, 736, 737, 738, 739, 740 and 741, Levis, Que.	Drill hall site	149,154 sq. feet	Free grant.
"	17, 1910..	Annie C. Carr *et al.*	"	Land, Oyster Pond, N. S.	Breakwater	4,900 sq. feet	40 00
"	21, 1910..	Corporation of Port Arthur	"	Part of water lot 5 P, Port Arthur, Ont.	"	0.46 acre	1 00
"	29, 1910..	Mary Botha	"	North half of lot No. 191, Latchford, Ont	For a dam		1,250 00
Oct.	10, 1910..	Thos. Walsh	"	South half of lot No. 95, Latchford, Ont.	"		875 00
"	15, 1910..		"	Land, Cape Rouge, N.S.	Wharf	42,000 super. ft.	Expn. of land.
"	18, 1910..	Geo. Roberts	"	Lot No. 41, Latchford, Ont.	For a dam		125 00
"	21, 1910..	Heirs of late J. W. Burke	"	Land, Burke's Cove, N.B.	Breakwater	21,900 sq. feet	Expn. of land.
"	27, 1910..	Ls. Chapados (son of Theo)	"	Southern part of lot No. 292, Pasbepiac East, Que.	"	3,759 sq. feet	30 00
"	31, 1910..	Geo. A. Donaldson	"	Lots Nos. 148 and 149, Latchford, Ont.	For a dam		250 00

No. 2.—Statement of properties purchased or sold by the Department of Public Works of Canada, &c.—*Concluded.*

Date of Conveyance.	Vendors.	Purchasers.	Description of Property.	For what Purpose.	Area.	Price.
						$ cts.
Nov. 1, 1910..	Wm. J. Dickey.....	His Majesty....	Lots 1, 2 & 3, block 3, Revelstoke, B.C..	Public building site.....	.....	5,000 00
" 8, 1910..	T. W. D. Melloon.....	"	Lot No. 100, Rock Island, Stanstead, Que.	"	.....	2,500 00
" 12, 1910..	C. C. Short.....	"	Lots No. 5 to 8, block 13, High River, Alta.	Armoury site.....	.....	1 00
" 14, 1910..	Elizabeth Leamy and Chas. Leamy.	"	Part of lot No. 2E, 5th Range, township of Hull, Que.; and	Government purposes.....	3.59.100 acres.....	
			Parts of Lots 2 C and 3 A, 5th Range, township of Hull, Que; and part of lot No. 3A, township of Hull, Que.....	" "	0.51.100 acre.....	1,535 00
				" "	0.49.100 acre.....	
" 14, 1910..	Roman Catholic Episc. Corporation of the diocese of Sault Ste. Marie, Ont.	"	Lots Nos. 5 and 6, south side of Park St. and Lot No. 7, east side of Secord St., Port Arthur, Ont.	Armoury site.....	.....	3,300 00
" 14, 1910..	John C. MacDiarmid.....	"	Lot No. 236, N.E. cor. of Sherbrooke St. and Strathcona Ave., Montreal, Que.	.....	10,452 feet.....	14,632 80
" 16, 1910..	John Scott, *et uxor*.....	"	Part of Lot No. 35, Wallaceburg, Ont....	Public building site.....	.....	3,000 00
" 16, 1910..	Restigouche Salmon Club...	"	Transfer of land, Matapedia, Que.....	Right of way for Interprovincial Bridge.	.....	1 00
" 21, 1910..	D. J. O'Connell.....	"	Lot No. 4, s. side of Park St., Port Arthur, Ont.	Armoury site.....	37 ft. x 100 ft.....	Expn. of land.
" 21, 1910..	D. D. McGillivray.....	"	Lot No. 3, Port Arthur Ont. (s. side of Park St.)	Armoury site.....	37 ft. x 100 ft.....	Expn. of land.
" 26, 1910..	Edw. Malcolm, *et al*.....	"	Land, Port Malcolm, N.S.....	Wharfage accommodation.	20,796 sup. ft.....	2,100 00
Dec. 1, 1910..	Frs. Xavier Hamel *et uxor*..	"	Part of Lot No. 133, St. Croix, Que.....	Landing pier.....	13 perches & 264ft	20 00
" 1, 1910..	P. Bourque.....	"	Parts of Lots 131 & 132, St. Croix, Que...	"	50 perches & 81 ft.	110 00
" 3, 1910..	Geo. de Villers.....	"	Part of Lot No. 87a, St. Louis de Lotbiniere, Que.	Government purposes.....	51 perches and 242 ft. in superficies.	100 00
" 3, 1910..	Mabel G. Milner.....	"	Lot No. 115, Latchford, Ont.....	For a dam.....	.....	850 00
" 3, 1910..	James W. Smith.....	"	South 26 ft. of Lot No. 205, Latchford, Ont.	"	.....	250 00
" 5, 1910..	Edw. Fader.....	"	Land, Leithche's Creek, N.S.....	Approach to wharf.....	28,630 sq. ft.....	50 00
" 7, 1910..	Chs. Mickle *et uxor*.....	"	Lands, Gravenhurst, Ont.....	Wharf.....	1¼ acre land and 3¼ ac. land in water	525 00
" 3, 1910..	Municipality of Tilbury.....	"	Part of Lot 22, Tilbury, Ont..... Ont.	Public building site.....	.....	1,975 00
" 12, 1910..	J. J. Drew.....	"	Lot No. 4, Con. "C", Fort William, Ont	Improvements in Kaministiquia and Mission Rivers.	1.88 acre.....	940 00

" 12, 1910..	J. J. Drew.....	"	Part of Lot No. 3, Con. "B" Fort William, Ont.	Improvements in Kaministiquia & Mission Rivers.	2.82 acres.....	1,410 00
" 13, 1910..	A. M. and John Teskey.....	"	Westerly part of Lot No. 19, Port Arthur Ont.	Armoury site.....	.....	Expn. of land.
" 13, 1910..	E. A. Muir.....	"	Westerly part of Lot No. 18, Port Arthur, Ont.	Armoury site.....	.....	Expn. of land.
" 19, 1910..	G. H. Slipper, *et uxor*.....	"	Parcels of land, Port Arthur, Ont.....	Government purposes.....	.....	3,300 00
" 19, 1910..	John L. McRae, *et uxor*.....	"	Lots Nos. 8 and 9, Port Arthur, Ont.....	Government purposes.....	.....	4,000 00
" 19, 1910..	John Francis Teskey.....	"	Part of Lot No. 19, Port Arthur, Ont....	Armoury site.....	.....	600 00
" 20, 1910..	A. W. Glawson.....	"	Lands, Pleasant Bay Harbour, N.S.....	Approach to wharf.....	0.427.1000 acre....	1 00
" 23, 1910..	Daniel J. O'Connell, *et uxor*..	"	Land and premises composed of Lot No. 4, sub-division of Lot No. 5, Port Arthur, Ont.	Armoury site.....	.....	3,800 00
" 27, 1910..	Lucien Rheault.....	"	Part of Lot No. 88, Becancour, Que.....	Public wharf.....	25,910 sup. ft.....	1 00
" 29, 1910..	Philip Vibert.....	"	Lots Nos. 24, 25, 26 and 27, Block 43, Lethbridge, Alta.	Public building site.....	.....	30,000 00
Jan. 3, 1911..	R. M. Mitchell.....	"	Lot No. 17, Block 4, Weyburn, Sask.....	Public building site.....	.....	3,000 00
" 5, 1911..	Inverness Ry. & Coal Co....	"	Land, McIsaac's Pond, N.S.....	Harbour improvements...	52 acres.....	2,641 00
" 5, 1911..	Provincial Govt. of Ontario to Federal Government.	"	Land, Elk Lake, district of Nipissing, Ont.	Wharf.....	1.75.100 acre.....	Free transfer.
" 10, 1911..	The Hudson Bay Company.	"	Part of easterly half of Lot No. 2, Con. "G," Island No. 1, Fort William, Ont.	Government purposes.....	0.85.100 acres.....	850 00
" 10, 1911..	The Hudson Bay Company.	"	Part of Lot No. 1, Con. "G," Island No. 1, Fort William, Ont.	Government purposes.....	1.69—100 acres....	1,690 00
" 10, 1911..	The Hudson Bay Company.	"	Part of Lot No. 1, Con. "K," Island No. 2, Fort William, Ont.	Government purposes.....	1.95—100 acres....	975 00
" 24, 1911..	His Majesty.....	W. J. Dickey...	House and outbuildings on lot acquired for public building site, Revelstoke, B.C.	.....	.....	500 00
" 27, 1911..	Zebedee Hartling and Nancy Hartling.	His Majesty....	Land and wharf, building, etc., Spanish Ship Bay (Liscomb), N.S.	Wharf.....	1,855 sup. ft.....	420 00
Feb. 17, 1911..	A. E. Paquette and J. A. Frigon.	"	Lot No. 1049 and house thereon erected, parish of Mont Carmel, Que.	Government purposes.....	.....	1,000 00
" 17, 1911..	Hannah Spur.....	"	Land, Moncton, N.B.....	Armoury site.....	3 acres.....	7,000 00
" 21, 1911..	J. M. Faubert.....	"	Land, St. Joachim de Chateauguay, Que..	Wharf.....	2,370 sq. ft. more or less.	1,200 00
" 25, 1911..	Louise Shaw.....	"	Part of Lot No. 3, Con. "A," Fort William, Ont.	Improvements in Mission River.	1.94—100 acre.....	3,980 00
" 27, 1911..	The Richelieu and Ontario Nav. Co.	"	Land, Tadousac, Que.....	For wharf.....	1.80—100 acre.....	1 00
" 27, 1911..	Frs. Elz. Heppell.....	"	Land, Manicouagan, Que.....	Telegraph line.....	100 acres.....	100 00
" 28, 1910..	Corrigan Annie & vir.....	"	Land, Fassett, Que.....	Wharf.....	16,620 sup. ft.....	Free grant.
Mar. 1, 1911..	Emmanuel Allary.....	"	Land, Yamachiche, Que.....	River works.....	70,780 ft.....	262 00
" 1, 1911..	Agapit Bellemare.....	"	Land, Yamachiche, Que.....	River works.....	126,060 sq. ft.....	420 00
" 6, 1911..	Samuel Johnson.....	"	Land, Chatham, N.B.....	Site for extension to public building.	0·043—1000 acres.	2,800 00
" 11, 1911..	The Bell Telephone Co. of Canada, Ltd.	"	Bill of Sale, telephone line from St. Petronille to St. Laurent I.O., Que.	Government purposes.....	6 miles more or less.	625 00
" 17, 1911..	L'Association de l'Arsenal du 65eme Regiment C.M.R..	"	Lands, St. Louis Ward, Montreal, Que..	Armoury site.....	.....	50,000 00

No. 3.—STATEMENT of Properties leased to and by the Department of Public Works of Canada, from April 1, 1910, to March 31, 1911.

Date of Lease.	Lessors.	Lessees.	Description of Property.	For what Purpose.	Duration of Lease	Rental.
						$ cts.
April 1, 1910..	J. E. Argue and W. W. Cooper	His Majesty....	Offices-Lot 6, Block 50, Swirft Curent Sask.....	For Dom. Lands Agent...	2 years.....	$90 per month.
" 1, 1910..	His Majesty.....	The Rothesay Boat Club, Ltd	Land—Kennebecasis River, N.B....	Private enterprise.....	20 years.....	$10 per annum.
" 1, 1910..	John F. Wiebe.....	His Majesty....	Lot No. 4, Block 14 and building—Herbert, Sask.....	Government purposes.....	6 months.....	$25 per month...
" 2, 1910..	His Majesty.....	S. Boyer.....	..Premises No. 35 McKenzie Avenue Ottawa.....	Private enterprise.....	During pleasure...	$15 per month.
" 7, 1910..	E. W. Clarke.....	His Majesty....	Premises No. 12 West side of Emmet St..., Ottawa, Ont.....	For Militia & Defence....	3 years.....	$40 per month.
" 11, 1910..	The Molsons Bank.....	His Majesty....	1st and 2nd flats, Molsons Bank Chambers, Ottawa, Ont.....	For Marine & Fisheries...	4 years.....	$2,340 per annum.
" 11, 1910..	Irvine School District No. 892.....	" "	Buildings on Lots Nos. 8, 9 and 10, Block 2, Irvine, Alta.....	Immigration purposes.....	1 year.....	$180 per annum.
" 11, 1910..	John Burn.....	"	Premises, Sedgewick, Alta.....	Immigration purposes.....	7 months.....	$210 whole period.
" 18, 1910..	His Majesty.....	Josephine Lauzon	Premises No. 516 Sussex St., Ottawa, Ont.....	Private enterprise.....	During pleasure...	$20 per month.
" 21, 1910..	"	D. Ramsum....	Premises No. 20 McKenzie Avenue, Ottawa, Ont.....	" "	" "	$20 per month.
" 23, 1910..	A. K. Markham et al.....	"	Premises Gull Lake, Sask.....	Immigration purposes.....	7 months.....	$175 whole period.
" 25, 1910..	The Pembina & YellowHead Trading Co., Ltd.....	"	Premises Entwistle, Alta.....	" "	7 months.....	$140 whole period.
" 27, 1910..	Isaie Gagnon.....	"	Premises Athabasca Landing, Alta..	" "	6 months.....	$90 whole period.
" 29, 1910..	Rodier Estate.....	"	Premises No. 306 St. Antoine Street, Montreal, Que.....	Government purposes.....	3 years.....	$2,000 for 1st year, $2,500 last 2 years.
" 30, 1910..	His Majesty.....	C. Piche.....	Premises No. 502 Sussex St., Ottawa, Ont.....	Private enterprise.....	During pleasure...	$22 per month.
" 30, 1910..	The Board of Trade of the City of Edmonton.....	His Majesty....	Room ground floor, Board of Trade	For Asst. Insp. of Weights & Measures.....	1 year.....	$240 per annum.
May 1, 1910..	John Jack.....	"	Premises Quebec, Que.....	For Med. Supt. of Quebec Immigration Hospital...	8 years.....	$600 per annum.
" 7, 1910..	Federal Government.....	Prov. Govt. of Alberta.....	Old Dom. Lands Office, Edmonton..	For Government purposes.	During pleasure...	$50 per month.
" 18, 1910..	J. H. Currie.....	His Majesty....	Lot No. 4, Block 3, Vonda, Sask....	Immigration purposes.....	5 months.....	$20 per month.
" 25, 1910..	A. W. Ormsby.....	Lot No. 23, Bloc	k 2, Edmonton,Alta	Govt. purposes.....	3 years.....	$1,740 per annum.
" 31, 1910..	His Majesty.....	A. Charette.....	Premises No. 506½ Sussex St., Ottawa Ont.....	Private enterprise.....	During pleasure...	$20 per month.

June 1, 1910..	Can. Pac. Ry. Company....	His Majesty....	Land and premises, North Portal, Sask.....	Imm. Hall (area 0·$\frac{344}{1000}$ac.)	1 year renewable..	$1 per annum.
" 1, 1910..	Confederation Life Ins. Co..	"	Offices for Quarters, Toronto, Ont...	Resident Engineer.....	3 years.....	$1,400 per annum.
" 22, 1910..	His Majesty.....	T. J. Egan.....	Premises No. 107 St. Patrick Street Ottawa, Ont.....	Private enterprise.....	During pleasure...	$18 per month.
" 22, 1910..	"	R. A. Proska...	Premises No. 482 Sussex St., Ottawa, Ont.....	Private enterprise.....	During pleasure...	$15 per month.
July 7, 1910..	F. K. Jarman and G. H. Popham.....	His Majesty....	Premises Nos. 124, 126 and 128 Queen St., Ottawa, Ont.....	Interior Dept.....	5 years.....	$6,200 per annum.
" 25, 1910..	His Majesty.....	Essa Habib.....	Premises No. 36 McKenzie Avenue, Ottawa, Ont.....	Private enterprise.....	During pleasure...	$15 per month.
Aug. 2, 1910..	"	The Kingston Dry Dock and Shipbuilding Co Ltd.....	Graving dock and property connected therewith, Kingston, Ont.....	" "	21 years	$10,000 per annum.
" 5, 1910..	Fred. Edwards.....	His Majesty....	Premises North Battleford, Sask....	Immigration purposes.....	1 year.....	$300 whole period.
" 9, 1910..	Can. Pac. Ry. Co.....	"	Land Calgary, Alta.....	" " (area $\frac{41}{100}$ acre).....	15 years.....	$10 per annum.
" 18, 1910..	Saskatoon Masonic Temple Co., Ltd.....	His Majesty....	Ground floor of Masonic Temple Building, Saskatoon, Sask.....	Dom. Lands Office.....	5 years.....	$1,800 per annum.
Sept. 2, 1910..	Grand Trunk Ry. System..	"	Additional space, Union Stn. Bldg., Postal Stn. "A", Toronto.....	Post Office Dept.....	During pleasure...	$100 per month.
" 10, 1910..	Corporation of Town of Blenheim.....	"	South East half of ground floor Town Hall Building, Blenheim, Ont.....	Post Office Dept.....	5 yrs. (Contribution by Govt. $200 yr., Postmaster by $150 per annum....	$350 per annum.
Oct. 8, 1910..	W. L. Ross.....	"	Lots Nos. 38, 39 and 40, Block 6, Entwistle, Alta.....	Site Immigration Hall....	21 years.....	$1 per annum.
" 19, 1910..	S. F. McKinnon.....	"	Room No. 2, 1st floor, Toronto.....	Steamboat Inspectors.....	5 years.....	$720 per annum.
Dec 12, 1910..	Slater Estate.....	"	Room No. 9, Sparks Chambers, Ottawa, Ont.....	Director of Mines.....	During pleasure...	$20 per month.
" 17, 1910..	Jos. Tice.....	"	Building, Stettler, Alta.....	Immigration purposes.....	Apl. 1, 1910-Nov. 31, 1910.....	$25 per month.
" 17, 1910..	Cannel & Spencer.....	"	Three (3) rooms, Alberta Block, Edmonton, Alta.....	Government purposes.....	During pleasure...	$52 per month.
" 28, 1910..	Edwin Dickson Ker.....	"	Portion of ground floor, Hopewell Bldg., Ottawa, Ont.....	Dept. of Agriculture.....	3 years.....	$900 per annum.
Jan. 28, 1911..	M. Wood.....	"	Room in residence, Lethbridge, Alta.	Inland Revenue.....	.....	$20 per month.
" 30, 1911..	Rossin House Hotel Co.....	"	Portion of Rossin House Block and basement, Toronto, Ont.....	Postal Station "B".....	5 years.....	$1,800 per annum.
Feb. 13, 1911..	J. B. Duford and W. G. Charleson.....	"	Premises No. 113 Rideau St., Ottawa Ont.....	Militia & Defence.....	5 years.....	$4,700 per annum.
" 14, 1911..	P. C. Tomkins.....	"	Premises Grouard, Alta.....	Dom. Lands Office.....	During pleasure...	$35 per month.

No. 3.—STATEMENT of properties leased to and by the Department of Public Works of Canada, &c.—*Concluded.*

Date of Lease.	Lessors.	Lessees.	Description of Property.	For what Purpose.	Duration of Lease	Rental.
						$ cts.
Feb. 14, 1911..	Edw. Hopkins and Art. Latham.....	His Majesty....	Four rooms, Russell Block, Moosejaw, Sask.....	Ry. Mail Service Staff....	1 year.....	$80 per month.
" 15, 1911..	Railways& Canals Dept.....	Pub. Works Dep	Land, Tignish, P.E.I., 60 x 100 feet...	Public Building site.....	During pleasure...	$1 per annum.
" 17, 1911..	His Majesty.....	Peter Seguin....	Premises No. 408 Sussex St., Ottawa, Ont.....	Private enterprise.....	" " ...	$18 per month.
" 20, 1911..	G.N.W. Telegraph of Can..	His Majesty....	Two (2) rooms, 2nd floor of Building, Ottawa, Ont.....	Conservation Commission	Nov. 1, '10-Nov. 30, 1913.....	$420 per annum.
" 23, 1911..	Horace Dussault.....	"	Land, Douglas West, Que.....	Government purposes.....	1 year.....	$1 per annum.
Mar. 27, 1911..	City of St. John.....	"	Land near upper end of No. 5 Warehouse, St. John, N.B.....	Site for Shelter.....	During pleasure...	2c. per annum.
" 29, 1911..	Corporation of the Town of Ridgetown.....	"	Portion of Mun. Bldg., Ridgetown, Ont.....	Post Office.....	5 years.....	****$525 per ann'm

****Contribution by Government $300 per annum, by Postmaster $225.

J. A. CHASSE,
Law Clerk.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, July 22, 1911.

LIST

OF SOME OF THE

ACTS OF PARLIAMENT

PASSED AT THE SESSION OF 1910-11

HAVING REFERENCE TO THE

DEPARTMENT OF PUBLIC WORKS, OR WORKS UNDER ITS CHARGE.

LIST of some of the Public Acts of the Parliament of Canada, passed at the Third Session of the Eleventh Parliament, begun and holden at Ottawa, on the Seventeenth day of November, 1910, and closed by Prorogation on the Twenty-ninth day of July, 1911, and having reference to the Public Works Department or works under its charge.—(I—2, George V.)

Subject.	Full Title of the Statute.	Chapter.	Page in Statute Book.—
Sums granted to His Majesty for the financial years ending respectively 31st March, 1911, and the 31st March, 1912, and the purposes for which they are granted.	An act for granting to His Majesty certain sums of money for the Public Service of the financial years ending respectively the 31st March, 1911, and the 31st march, 1912. Cited as the Appropriation Act (No. 2) ,1911.	2	5
Sums granted to His Majesty for the financial years ending respectively 31st March, 1911, and the 31st March, 1912, and the purposes for which they are granted.	An act for granting to His Majesty certain sums of money for tbe Public Service of the financial years ending respeectively the 31st March, 1911, and the 31st March, 1912. Cited as the Appropriation Act (No. 3), 1911.	2	53

N.B.—By proclamation dated June 8, 1910, rules and regulations for the operating of the St. Andrews lock, on the Red river, Manitoba, were approved. (*Vide Canada Gazette*, Vol. xliv., page 625.)

By proclamation dated February 27, 1911, the tariff of tolls proposed to be levied by the French River Boom Company, Limited, for the use of their works during the season of 1911, was approved. (*Vide Canada Gazette,* Vol. xliv., page 2947.)

By proclamation dated February 27, 1911, the tariff of tolls proposed to be levied by the Upper Ottawa Improvement Company, Limited, of Ottawa, Ont., for the use of their works during the season of 1911, was approved. (*Vide Canada Gazette,* Vol. xliv., page 2946.)

By proclamation dated April 12, 1911, the tariff of tolls proposed to be levied by the Rouge Boom Company of Calumet, P.Q., for the use of their works during the season of 1911, was approved. (*Vide Canada Gazette,* Vol. xliv., page 3513.)

J. A. CHASSE,
Law Clerk.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, July 22, 1911.

NATIONAL ART GALLERY

REPORT

FOR THE FISCAL YEAR ENDED MARCH 31, 1911

TORONTO, May 12, 1911.

To the Honourable the Minister of Public Works,
Ottawa.

SIR,—As President of the Advisory Arts Council having charge of the National Art Gallery, I beg to report that since the work of the council began there have been purchased down to the close of the fiscal year ending March 31, 1911, the following:—

PAINTINGS.

Willows, Evening, W. E. Atkinson, A.R.C.A.
Evening, J. M. Barnsley.
Dutch Peasant, J. W. Beatty, A.R.C.A.
Midsummer Night, Archibald Browne, A.R.C.A.
A Muskoka Highway, F. H. Brigden.
Marguerite, Harry Britton.
A Little Puritan, Franklin Brownell, R.C.A.
Evening, William Brymner, P.R.C.A.
Illustrations and Designs, Walter Crane.
The First Snow, Maurice Cullen, R.C.A.
Rue du Canal, Moret sue Loing, Clarence Gagnon, A.R.C.A.
Twenty-one Etchings, Clarence Gagnon, A.R.C.A.
The Port of Audierne, Brittany, F. le Gout-Gerard.
The Landing of H.R.H. The Duke of Cornwall and York at Quebec, John Hammond, R.C.A.
The Prospector, C. W. Jeffreys.
Evening on the Conestogo, C. M. Manly, A.R.C.A.
Le Quai des Grands Augustiue (Paris), J. W. Morrice.
Cap Tourmente, Edmund Morris, A.R.C.A.
Portrait, A. D. Patterson, R.C.A.
Arrival of Champlain at Quebec, G. A. Reid, R.C.A.
Col. C. Churchill, Sir Joshua Reynolds, P.R.A.
Ombre et lumière, Dagnac-Rivière.
Madame de B. and Son, John W. Russell.
Fisherman's House, Tréport, H. E. LeSidaner.
October on the Fraser River, F. M. Bell-Smith, R.C.A.
Nut Gatherers in the Forest, Homer Watson, R.C.A.
The Mill Race, Mary Wrinch.
The Settlement on the Hillside, A. Sûzor-Coté.
Old Kirby Mill, Brantford, J. S. Gordon.
The Smiths, W. Blair Bruce.
Mary in Green, John Lavery, A.R.A.
The Cattle Thief, Arthur Heming.
The Bear Hunter, Arthur Heming.
Timber Crib in the Calumet Rapids, Arthur Heming.
Thirteen Proof Illustrations, Arthur Heming.
Five Etchings, Frank Armington.
One Etching, Caroline Armington.
Sir John Hartopp, Sir James Thornhill.

Charles Dickens, William Bradley.
The Castle, Georges Michel.
Pigeons, The Luxembourg, J. Dupuy.
The Leisure Hour, Théodule Ribot.
The Burgomaster, F. Roybet.
Resting, J. M. Swan, R.A.
Winter, W. B. Tholen.
Citadel in Cairo, H. Bauer.
A Daffodil, Laura Muntz, A.R.C.A.
Street Scene, Venice, R. S. Hewton.
English Farm Scene, George Vincent.
English Forest Road, James Stark.
Wolfe at Quebec, J. S. Copley, R.A.
Man in Armour, R. Harris, R.C.A.
Le Pointe de L'Hebellu, Maxime Maufra.
The Moose Country, T. Mower Martin, R.C.A.
Femme et enfants, Georges D'Espagnate.
Gray and Gold, Florence Carlyle.
Nature Morte, Albert André.
Hunters Returning with their Spoil, H. Sandham, R.C.A.
Landscape Sketch, C. F. Daubigny.
A May Evening, Elizabeth Stanhope Forbes.
The Shepherd, A. G. Décamps.
Calves, Franklin Brownell, R.C.A.
The Pyramids, P. Marilhat.
Winter, A. Van Anrooy.
The Studio, Louis Mettling.
Summer, Bertram Priestman.
The Pond, Théodore Rousseau.
The Flying Army, J. Jurres.
Church in a Valley, Théodore Rousseau.
Vue d'Etaples, Eugène Boudin.
Forest Interior, Théodore Rousseau.
Lady in White, Sydney S. Tully, A.R.C.A.

BRONZES.

Monsieur de Montigny, A. Laliberté.
Indian Warrior, A. P. Proctor.
Prowling Panther, A. P. Proctor.
Standing Puma, A. P. Proctor.
The Competitor, R. Tait Mackenzie.

The following gifts have been made to the National Art Gallery:—

Portrait of General Booth, by J. W. L. Forster. Presented by the artist.

Painting, Les Rives de l'Eure, by Gustave Loiseau. Presented by Messrs. Durand-Ruel & Sons, of New York.

Painting, Morning. A Corner of the Pasture, by J. L. Graham, A.R.C.A. Presented by Miss Caroline Hill.

Drawing, Sir Benjamin West, R.A. Presented by Mr. J. H. Stanford.

In addition to the paintings and bronzes, the beginning of a representative collection of casts from ancient and mediaeval statuary has been made, but as the objects are now being unpacked and set in place the list of the objects will be deferred until the next report of the council is made.

During the year, such paintings as were hung in the old National Art Gallery in the Fisheries building, together with many purchased which could not be hung for want of space, were removed to the new rooms provided for the National Art Gallery in the Victoria Memorial Museum building.

During the year, the council secured the services of Mr. Eric Brown as curator of the National Art Gallery, and for many months past he has been actively engaged in superintending the removal and rehanging of the pictures and the placing of other objects, and in other work connected with the gallery.

The council beg to recommend that in the autumn, there should be a formal opening of the National Art Gallery, in order that its usefulness may be made apparent to the Canadian public.

As you are aware, the council originally consisted of the late Sir George Drummond, the Hon. Arthur Boyer and the writer. On the death of Sir George Drummond, the government appointed Dr. Francis J. Shepherd in his place, and at that time the writer was elected president of the council.

Since its inception, the council has met thirteen times, and in addition to such meetings a very active correspondence in connection with the selection of pictures has taken place.

I am, yours faithfully,

B. E. WALKER.

NAMES OF THE CHIEF OFFICERS

OF THE

DEPARTMENT OF PUBLIC WORKS

WITH

DATES OF APPOINTMENT, ETC., FROM 1841 TO 1911.

NAMES OF THE CHIEF OFFICERS.

The names and dates of the appointment, &c., of the principal Officials of the Department of Public Works, from 1841 to 1911.

Names.	Capacity or Office.	Date of Appointment.. Served. From	To
Under Statute 4-5 Vic., Chap. 38.			
Corporation Board of Works.			
Killaly, Hon. H. H.	Chairman	Dec. 29, 1841	Oct. 3, 1844
Daly, Hon. D.	Members		
Harrison, S. B.			
Sullivan, R. B.			
Davidson, J., Esq.			
Begly, Thomas A.	Secretary	Aug. 17, 1841	
Keefer, Samuel	Chief Engineer	" 17, 1841	
Rubidge, F. B.	Architect and Asst. Chief Engineer	Dec. 15, 1841	
New Board of Works.			
Killaly, Hon. H. H.	Chairman	Oct. 4, 1844	June 8, 1846
Daly, Hon. D.	Members		
Draper, Hon. W. H.			
Morris, Hon. W.			
Papineau, Hon. D. B.			
Under Statute 9th Vic., Cap. 37, &c.			
Robinson, Hon. W. B.	Chief Commissioner	June 22, 1846	Mar. 10, 1848
Tache, Hon. E. P.	Chief Commissioner	Mar. 11, 1848	Nov. 26, 1849
Chabot, Hon. J.	" "	Dec. 13, 1849	Mar. 31, 1850
Merritt, Hon. W. H.	" "	April 8, 1850	Feb. 11, 1851
Bourret, Hon. J.	" "	Feb. 12, 1851	Oct. 27, 1851
Young, Hon. John	" "	Oct. 28, 1851	Sept. 22, 1852
Chabot, Hon. J.	" "	Sept. 23, 1852	Jan. 26, 1855
Lemieux, Hon. F.	" "	Jan. 27, 1855	Nov. 25, 1857
Alleyn, Hon. C.	" "	Nov. 26, 1857	Aug. 1, 1858
Holton, Hon. L. H.	" "	Aug. 2, 1858	" 6, 1858
Sicotte, Hon. L. V.	" "	" 7, 1858	Jan. 10, 1859
Rose, Hon. John	" "	Jan. 11, 1859	June 12, 1861
Cauchon, Hon. Jos.	Commissioner	June 13, 1861	May 23, 1862
Tessier, Hon. U. J.	"	May 24, 1862	" 27, 1863
Drummond, Hon. L. T.	"	" 28, 1863	July 23, 1863
Laframboise, Hon. M.	"	July 24, 1863	Mar. 29, 1864
Chapais, J. C.	"	Mar. 30, 1864	June 30, 1867
Casgrain, Hon. Chas. Eus.	Second Commissioner	July 9, 1846	Feb. 29, 1848
Cameron, Hon. M.	Assistant Commissioner	Mar. 11, 1848	" 1, 1850
Wettenhall, James, Esq.	" "	Feb. 2, 1850	April 16, 1850
Bourret, Hon. Jos.	" "	April 17, 1850	Feb. 11, 1851
Killaly, Hon. H. H.	" "	Feb. 12, 1851	May 6, 1859
Keefer, Samuel	Deputy Commissioner	May 6, 1859	Mar. 7, 1864
Trudeau, Toussaint	" "	Mar. 8, 1864	May 29, 1868
Begley, Thos. A.	Secretary	Feb. 10, 1841	Oct. 31, 1857
Trudeau, Toussaint	"	Dec. 13, 1859	Mar. 7, 1868
Braun, Frederick	"	Mar. 8, 1864	July 1, 1864
Page, John	Chief Engineer	Oct. 31, 1873	Oct. 1, 1879

The names and dates of the appointment, &c., of the principal Officials of the Department of Public Works, from 1841 to 1911—*Concluded.*

Names.	Capacity or Office.	Date of Appointment.. Served. From	To
Under Statute 31 Vic., Cap. 12.			
McDougall, Hon. Wm	Minister	July 1, 1867	Dec. 7, 1869
Langevin, C. B., Hon. Hector L	"	Dec. 8, 1869	Nov. 6, 1873
Mackenzie, Hon. Alexander	"	Nov. 7, 1873	Oct. 16, 1878
Tupper, C. B., K.C.M.G., Sir Charles	"	Oct. 17, 1878	May 19, 1879
Langevin, C.B., K.C.M.G., Sir Hector L	"	May 20, 1879	Aug. 11, 1891
Smith, Hon. Frank	Acting Minister	Aug. 14, 1891	Jan. 10, 1892
Ouimet, Hon. Joseph Alderic	Minister	Jan. 11, 1892	April 30, 1896
Desjardins, Hon. Alphonse	"	May 1, 1896	July 12, 1896
Tarte, Hon. J. Israel	"	July 13, 1896	Oct. 21, 1902
Sutherland, Hon. James	"	Nov. 11, 1902	May 3, 1905
Hyman, Hon. Charles S	"	May 22, 1905	Aug. 29, 1907
Pugsley, Hon. Wm	"	Aug. 30, 1907	Oct. 12, 1911
Monk, Hon. F. D	"	Oct. 12, 1911	
Trudeau, Toussaint	Deputy Minister	May 29, 1868	Oct. 1, 1879
Baillargé, G. F	"	Oct. 4, 1879	Dec. 31, 1890
Gobeil, A., I.S.O	"	Jan. 1, 1891	June 2, 1908
Hunter, James B	"	July 1, 1908	
St. Laurent, Arthur	Assistant Deputy Minister	July 1, 1908	
Braun, Frederick	Secretary	" 1, 1867	Sept. 30, 1879
Chapleau, S	"	Oct. 1, 1879	Nov. 4, 1880
Ennis, F. H	"	Nov. 5, 1880	Jan. 13, 1885
Gobeil, A	"	Jan. 23, 1885	Dec. 31, 1890
Roy, E. F. E	"	" 1, 1891	" 31, 1900
Gelinas, Fred	"	June 8, 1901	July 2, 1908
Tessier, Napoleon	"	Aug. 11, 1908	June 2, 1910
Desrochers, Rodolphe Charles	"	July 1, 1910	
McPherson, D. A	Assistant Secretary	Jan. 18, 1891	April 11, 1893
Desrochers, Rodolphe Charles	"	" 8, 1896	June 30, 1910
Coleman, L. H	"	May 23, 1911	
Page, John	Chief Engineer	July 1, 1868	Oct. 1, 1879
Perley, H. F	"	Nov. 25, 1880	July 10, 1891
Coste, Louis	"	July 26, 1892	Mar. 18, 1899
Lafleur, E. D	"	Jan. 7, 1905	
Dufresne, A. R	Assistant Chief Engineer	May 13, 1910	
Scott, Thos. S	Chief Architect	May 26, 1871	Oct. 30, 1881
Fuller, Thomas	"	Oct. 31, 1881	June 30, 1897
Ewart, David, I.S.O	"	Nov. 2, 1897	

NAMES

OF THE

Officials Employed on the Slides and Booms of Canada

ON MARCH 31, 1911

WITH

DATES OF APPOINTMENT, SALARIES, ETC.

OFFICIALS EMPLOYED ON THE SLIDES AND BOOMS.

STATEMENT showing the Names, Dates of Appointment, Salaries, &c., of persons employed on the various Slides and Booms on March 31, 1911.

Name.	Date of Birth.	Position.	Where employed.	Date of Appointment.	Salary.	Remarks.
					$ cts.	
Collector of Public Works Revenue.						
E. T. Smith	Nov. 26, 1846.	Collector—First Div. Subdivision "B"	Ottawa	July 1, 1889.	$2,325 00 a year	Date of first appointment to Crown Timber Office, Ottawa, June 23, 1864. Clerk in Dept. of Inland Revenue, July 1, 1870, to June 30, 1889. Transferred to civil list with rank of first class clerk, January 5, 1892. Chief clerk, July 1, 1906.
James Steen	June 17, 1830.	Boatman	"	July 12, 1889.	60 00 a month	Date of first appointment, May 26, 1861. Timber counter, Ottawa, for Dept. of Inland Revenue, January 7, 1884, to June 30, 1889.
J. Brassard	Jan. 9, 1859.	"	"	Mar. 1, 1901.	70 00 "	
Saguenay District.						
G. Bilodeau	Jan. 29, 1841.	Boom master	Chicoutimi	May 1, 1906.	75 00 "	
William Dallaire	Oct. 8, 1857.	Asst. boom master	"	April 1, 1907.	60 00 "	
Arm. Ouellet	June 15, 1879.	Boom keeper	"	May 1, 1906.	40 00 "	
Willie Dallaire	Dec. 23, 1882.	"	"	May 1, 1906.	40 00 "	
N. Duchesne	Jan. 6, 1880.	"	"	April 6, 1908.	40 00 "	
St. Maurice District.						
L. P. Dallaire	June 11, 1866.	Paymaster	Three Rivers	May 1, 1898.	1,050 00 a year	
Jos. Page	July 7, 1845.	Boom master	Mouth of St. Maurice.	Dec. 10, 1879.	75 00 a month	
John Dick	April 15, 1848.	Asst. boom master	Three Rivers	May 21, 1898.	75 00 "	
H. Bourassa	Aug. 15, 1859.	"	Ste. Flore	Dec. 1, 1906.	52 00 "	
Moïse Masson	Dec. 29, 1845.	Boom master	Grandes Piles	April 19, 1898.	75 00 "	
N. Lymburner	July 22, 1855.	"	Shawinigan Falls	July 1, 1895.	75 00 "	
Napoleon Lapointe	Mar. 15, 1872.	"	Shawinigan Bay	Nov. 12, 1906.	75 00 "	
Pierre Duchaine	Oct. 8, 1856.	"	Grand-Mere	May 7, 1907.	75 00 "	
F. Thibaudeau	.....	Asst. boom master	Three Rivers	June 1, 1910.	75 00 "	

Ottawa District.						
G. P. Brophy	Feb. 24, 1846.	Superintendent	Ottawa	July 6, 1873.	3,000 00 a year	*Ottawa River Works:*—In addition to the above officers, &c., there are employed during the running season, one foreman on slide at $1.50, and one assistant foreman at $1.25 a day; also 25 to 30 labourers at $1 to $1.40 a working day.
J. Kent	Jan. 28, 1864.	Accountant*	"	Aug. 1, 1886.	1,600 00 "	
J. C. Scott	June 27, 1865.	Asst. engineer	"	April 1, 1889.	1,950 00 "	
S. E. Smith	May 25, 1869.	Clerk	"	Nov. 7, 1904.	1,110 00 "	
A. A. Nantel, Miss	May 31, 1887.	Typewriter	"	July 2, 1908.	650 00 "	
Wm. Cain	April 22, 1860.	Messenger	"	Jan. 1, 1892.	730 00 "	
Geo. P. Huguet	Mar. 13, 1883.	Draughtsman	"	July 2, 1905.	1,200 00 "	
G. R. Nash	Oct. 16, 1882.	"	"	Aug. 26, 1904.	1,400 00 "	
D. Noonan	June 17, 1840.	Boom master	Gatineau	Mar. 21, 1878.	750 00 "	
J. Souliére	Nov. 8, 1829.	Deputy slide master	Chaudiere	—— — 1858.	3 00 a day	
P. D. Chéné	May 6, 1843.	"	Hull	June 14, 1899.	2 00 "	Employed about six months.
W. A. Shirreff	Oct. 27, 1842.	"	Chats	April 26, 1898.	1 50 "	Oversees repairs in winter.
J. Tierney	June 7, 1836.	"	Arnprior	Mar. 27, 1908.	2 50 "	Actively employed about seven months.
Joseph McCrea	Mar. 26, 1859.	Boom master	Springtown	May 15, 1880.	25 00 a month	Employed about three months during season of navigation.
Patrick Barry	Mar. 27, 1858.	Deputy slide master	High Falls	Mar. 10, 1888.	1 50 a day	Employed four months during season of navigation. Oversees repairs in winter.
Duncan McLaren	Jan. 7, 1860.	"	Portage du Fort	Sept. 7, 1881.	456 25 a year	" "
N. Rochon	April 2, 1879.	"	Black River	Mar. 1, 1900.	480 00 "	" "
Wm. Selkirk	May 19, 1848.	"	Lower Petawawa	Jan. 19, 1900.	2 00 a day	" "
J. R. Jennings	April 28, 1843.	"	Upper Petawawa	June 2, 1905.	2 00 "	
Wm. Thomson	May 3, 1843.	"	Mountain	Sept. 2, 1879.	1 25 "	" 6 months "
S. Moorhead	May 3, 1861.	"	Calumet	Mar. 1, 1901.	1 25 "	" 6 to 7 months "
John Mullin	July 27, 1851.	"	Coulonge	April 10, 1899.	2 00 "	" 4 months "
J. F. McGuire	Dec. 16, 1842.	"	Dumoine	May 1, 1897.	2 00 "	Employed three months during season of nav. Will inspect works when required.
Jas. Carey	July 6, 1850.	In charge	Cedar Lake Dam	April 1, 1901.	2 00 "	
J. Malbœuf	Nov. 13, 1844.	Deputy slide master	Crooked Chute	April 3, 1905.	2 00 "	
A. H. Johnson	Nov. 28, 1839.	"	Chenaux	—— — 1865.	2 50 "	Paid during season of navigation, seven months.
Newcastle District.						
W. T. Junkin	Nov. 2, 1867.	Slide master	Fenelon Falls	Nov. 15, 1896.	100 00 a year	Receives $360 a year as lock master from Department of Railways and Canals.
J. C. Bates	.....	"	Burleigh	Feb. 6, 1907.	100 00 "	" "
Richelieu District.						
N. Menard	.....	Boom master	Belœil Station	May 21, 1908.	100 00 "	
Burlington Channel Swing Bridge.						
J. W. Tunnis	Nov. 19, 1859.	Bridge attendant	Burlington	April 1, 1909.	65 00 a month	
D. Thompson	Mar. 2, 1866.	Bridge assistant	"	April 1, 1909.	1 75 a day	Employed nine months.
J. Hazel, Jr.	.....	Bridge assistant	Burlington	Mar. 20, 1911.	1 75 per day	Employed nine months.
T. Harvey	May 22, 1863.	"	"	April 1, 1909.	1 75 "	"

*Appointed Accountant and Paymaster, October 4, 1904.

LOCKS, ETC., EMPLOYEES.

STATEMENT showing the Names, Dates of Appointment, Salaries, &c.—*Concluded.*

Name.	Date of Birth.	Position.	Where employed.	Date of Appointment.	Salary.	Remarks.
					$ cts.	
Yamaska Lock.						
O. Mineau	July 4, 1844.	Lock keeper	Yamaska	Sept. 1, 1885.	75 00 a month	"
H. Lambert	Aug. 20, 1844.	"	"	July 1, 1897	50 00 "	"
Rivière du Lièvre Lock.						
Hugh R. Gorman	Sept. 20, 1842.	Lock master	Rivière du Lièvre	April 15, 1897.	47 75	
Charles Brazeau	Dec. 23, 1862.	Labourer	"	Mar. 3, 1902.	35 00 "	Employed eight months.
Riviere Saint-Louis, Feeder.						
St. Andrew's Rapids Lock and dam.						
A. S. Innes	May —, 1870.	Superintendent	Red River, Man.	April 1, 1910.	1,500 00 per an.	
E. H. G. G. Hay	Mar. —, 1840.	Assistant supt.	"	April 1, 1910.	1,200 00 "	
H. B. Johnston	July —, 1871.	Machinist	"	April 1, 1910.	1,000 00 "	
C. W. Cornish		Electrician	"	April 1, 1910.	960 00 "	
G. Moore	Dec. —, 1862.	Lockman	"	May 5, 1910.	540 00 "	Employed during season of navigation.
W. Fidler	Mar, —, 1866.	"	"	May 5, 1910.	540 00 "	" "
C. Purden	July —, 1850.	"	"	May 5, 1910.	540 00 "	" "

NAMES

OF

PERSONS EMPLOYED ON THE VARIOUS GRAVING DOCKS

ON MARCH 31, 1911

WITH

DATES OF APPOINTMENT, SALARIES, ETC.

GRAVING DOCK EMPLOYEES.

STATEMENT showing the Names, Dates of Appointment, Salaries, &c., of persons employed on the various Graving Docks, March 31, 1911

Name.	Position.	Where Employed.	Date of Appointment.	Salary.	Remarks.
Esquimalt Graving Dock, British Columbia.					
J. A. Gould	Dockmaster	Esquimalt	June 20, 1906	150 00 a month	
John Jeffcott	Engineer	"	Jan. 4, 1901	120 00 "	
F. N. Jones	Assistant engineer	"	Jan. 8, 1901	100 00 "	
A. D. Grieve	Carpenter	"	Dec. 1, 1878	115 00 "	
J. Young	Labourer	"	June 1, 1903	65 00 "	
J. Stock	"	"	July 1, 1894	65 00 "	
Chas. Jordan	Stoker	"	July 1, 1901	70 00 "	
Joseph Apleby	"	"	Jan. 1, 1909	70 00 "	
James Isbester	Watchman	"	July 24, 1909	60 00 "	
Levis Graving Dock.					
Alf. Samson	Dockmaster	Levis	Feb. 15, 1900	1,800 00 a year	
W. McDougall	Mechanical engineer	"	June 1, 1888	90 00 a month	
T. Després	Asst. mechanical engineer	"	July 21, 1901	70 00 "	
Casimir Bourassa	Fireman	"	Feb. 15, 1907	50 00 "	
Kingston Graving Dock.					
Dock leased May 1, 1910, for a period of 21 years to the Kingston Dry Dock and Shipbuilding Company, Limited.—W. J. Fair, Secretary.					

JOS. VINCENT.

LIST

OF

ENGINEERS, ENGINEMEN, FIREMEN AND CARETAKERS

EMPLOYED IN THE

PUBLIC BUILDINGS THROUGHOUT THE DOMINION ON MARCH 31, 1911

DATES OF APPOINTMENT, SALARIES, ETC.

ENGINEERS AND CARETAKERS, PUBLIC BUILDINGS.

STATEMENT showing the Names, &c., of the Engineers, Enginemen, Firemen, Caretakers, Hoist Attendants and Watchmen employed at Dominion Public Buildings on March 31, 1911

Place.		Building.	Name.	Date of Birth.	Position.	Date of Appointment.	Monthly Salary.	Time Employed each year.	Yearly Salary.
							$ cts.		$ cts.
Amherst	N. S	Post office	J. H. Chapman	Jan. 3, 1846	Caretaker	Sept. 1, 1901	33 33	12 months	400 00
Antigonish	"	Public building	J. C. Fraser	May 31, 1847	"	Oct. 1, 1907	33 33	12 "	400 00
Annapolis	"	Post office and cust. house	John McKay	Oct. 26, 1847	"	April 1, 1891	33 33	12 "	400 00
Arichat	"	Public building	Mrs. A. DeRooch	June 30, 1868	"	May 5, 1905	12 50	12 "	150 00
Baddeck	"	"	D. F. McKenzie	May 20, 1848	"	Jan. 21, 1899	33 33	12 "	400 00
Bridgewater	"	"	Thos. Cohoon	Jan. 9, 1853	"	" 19, 1909	33 33	12 "	400 00
Canso	"	"	R. Sutherland	Dec. 23, 1855	"	Oct. 12, 1907	33 33	12 "	400 00
Dartmouth	"	"	I. C. Henley	Dec. 11, 1846	"	May 22, 1894	33 33	12 "	400 00
Digby	"	"	F. Dennison	Nov. 8, 1841	"	Mar. 14, 1902	33 33	12 "	400 00
Glace Bay	"	"	Mrs. J. A. Currie		"	Dec. 20, 1909	50 00	12 "	600 00
Guysborough	"	"	W. G. Hadley	Nov. 29, 1844	"	May 2, 1906	4 16	12 "	50 00
Halifax	"	Dominion building	Richard Power	Aug. 15, 1834	Engineer	Oct. 1, 1871	62 50	12 "	750 00
"	"	"	J. DeYoung	Dec. 8, 1860	Fireman	Nov. 28, 1904	50 00	12 "	600 00
"	"	"	Jas. Dee	July 21, 1855	Watchman	Feb. 18, 1911	39 00	12 "	468 00
"	"	"	R. W. Anderson	Nov. 1850	Elevatorman	Oct. 31, 1910	50 00	12 "	600 00
"	"	Examining warehouse	M. O'Neil	Dec. 30, 1850	Caretaker	Oct. 1, 1897	50 00	12 "	600 00
"	"	Immigrant building	John Oxley	April 17, 1856	Fireman	Feb. 2, 1897	60 00	12 "	720 00
"	"	New custom house	J. Barnes	Dec. 3, 1857	Engineer	Jan. 28, 1907	60 00	12 "	720 00
"	"	" "	G. Selig	April 21, 1854	Fireman	April 26, 1907	50 00	12 "	600 00
"	"	" "	F. Warner	Oct. 8, 1860	"	May 1, 1907	37 50	12 "	450 00
"	"	Custom house	J. F. Sullivan	April 16, 1866	Asst. caretaker	July 1, 1892	33 33	12 "	400 00
"	"	"	P. L. Nickerson		Elevatorman	Feb. 6, 1911	50 00	12 "	600 00
"	"	"	Geo. Crockford	June 19, 1855	Cleaner	July 7, 1910	46 00	12 "	552 00
Inverness	"	Public building	J. R. McLennan	Jan. 22, 1857	Caretaker	Mar. 20, 1908	33 33	12 "	400 00
Kentville	"	"	W. Hiltz	April 30, 1864	"	Nov. 14, 1900	33 33	12 "	400 00
Liverpool	"	"	James Clements	June 5, 1835	"	June 27, 1900	33 33	12 "	400 00
Lunenburg	"	"	N. Myra		"	Aug. 1, 1909	33 33	12 "	400 00
New Glasgow	"	Post office	K. Forbes	June 1851	"	Dec. 1, 1910	37 50	12 "	450 00
North Sydney	"	Public building	H. D. McMillan	Nov. 16, 1865	"	Mar. 11, 1911	33 33	12 "	400 00
Pictou	"	Post office and cust. house	Jas. Arbuckle	Feb. 18, 1836	"	Dec. 20, 1896	50 00	12 "	600 00
Shelburne	"	Public building	H. Swensburg	July 7, 1844	"	Feb. 17, 1911	33 33	12 "	400 00
Springhill	"	Post office	J. A. Watt	Sept. 5, 1849	"	Dec. 1, 1903	33 33	12 "	400 00
Sydney Mines	"	Public building	C. McMillan	Nov. 25, 1857	"	Jan. 19, 1905	37 50	12 "	450 00
Sydney South	"	Post office and cust. house	Mrs. M. Keefe	Jan. 4, 1850	"	" 13, 1904	33 33	12 "	400 00

Truro	"	Post office and cust. house	Alex. P. Smith	May	17, 1837	"	April	1, 1897	33 33	12	"	400 00
Westville	"	Public building	J. P. Collins	Jan.	14, 1865	"	July	6, 1909	33 33	12	"	400 00
Windsor	"	Post office	J. A. Mosher	Nov.	16, 1841	"	Feb.	13, 1899	33 33	12	"	400 00
Yarmouth	"	Public building	W. H. Whelan	Dec.	23, 1841	"	Mar.	1, 1900	33 33	12	"	400 00
Charlottetown	P.E. I.	Dominion building	A. McKenzie	May	12, 1856	"	Nov.	1, 1896	50 00	12	"	600 00
"	"	"	E. Cameron	Nov.	2, 1853	Messenger	"	15, 1906	41 66	12	"	500 00
"	"	"	M. A. Allen	Aug.	1, 1855	"	Jan.	24, 1898	50 00	12	"	600 00
"	"	"	P. McKenna	"	4, 1841	Asst. caretaker	May	13, 1907	50 00	12	"	600 00
Georgetown	"	Public building	A. D. McPhie, P.M.	Oct.	29, 1866	Caretaker	Mar.	27, 1909	6 25	12	"	75 00
Montague	"	"	H. L. Peardon	April	13, 1885	"	Aug.	27, 1906	13 33	12	"	160 00
Souris	"	"	Thos. Shea	Aug.	11, 1850	"	Dec.	8, 1906	29 16	12	"	350 00
Summerside	"	Dominion building	A. McSween	Sept.	25, 1835	"	Sept.	1, 1897	33 33	12	"	400 00
Bathurst	N.B.	Post office	J. H. Doucet	July	16, 1846	"	Mar.	26, 1906	33 33	12	"	400 00
Campbellton	"	Public building	W. Storey	Sept.	15, 1863	"	Sept.	13, 1907	33 33	12	"	400 00
Carleton, St. John	"	Post office	Mrs. J. C. Leonard	April	11, 1859	"	Sept.	15, 1908	33 33	12	"	400 00
Chatham	"	"	C. Johnston	May	18, 1856	"	Mar.	27, 1895	25 00	12	"	300 00
Dalhousie	"	"	Wm. E. Gould	Jan.	1, 1853	"	Nov.	26, 1890	33 33	12	"	400 00
Fredericton	"	"	L. Yerxa	Dec.	18, 1843	"	July	1, 1900	41 66	12	"	500 00
Marysville	"	"	G. W. Foster, P.M.	Feb.	2, 1836	"	Dec.	23, 1903	12 50	12	"	150 00
Moncton	"	"	E. B. Hicks	Jan.	11, 1832	"	Jan.	11, 1886	37 50	12	"	450 00
Newcastle	"	"	Patrick Keating	Mar.	13, 1840	"	Oct.	23, 1886	33 33	12	"	400 00
Richibucto	"	"	J. Murray	Aug.	16, 1839	"	Feb.	1, 1904	33 33	12	"	400 00
St. John	"	Custom house	Neil J. Morrison	July	25, 1858	Eng. &caretaker	April	27, 1894	70 00	12	"	840 00
"	"	"	Christopher White	Nov.	20, 1844	Fireman	Nov.	9, 1885	50 00	12	"	600 00
"	"	"	J. T. Logan	Sept.	1, 1882	Asst. fireman	Dec.	23, 1908	45 00	12	"	540 00
"	"	"	James A. Paul	Aug.	1, 1837	Messenger	Oct.	13, 1891	50 00	12	"	600 00
"	"	Post office	James Wolfe	Mar.	10, 1850	Engineer	Dec.	1, 1893	60 00	12	"	720 00
"	"	"	Edward Haney	Feb.	22, 1849	Hoist attendant	Nov.	27, 1882	55 00	12	"	660 00
"	"	"	A. E. Theal	May	14, 1845	Caretaker	"	6, 1907	50 00	12	"	600 00
"	"	"	H. R. Garrity	Sept.	6, 1877	Asst. caretaker	April	16, 1910	25 00	12	"	300 00
"	"	Detention hospital	Jas. Gray			Fireman	Dec.	12, 1908	50 00	12	"	600 00
"	"	Immigration building	F. Haslam	Dec.	30, 1876	"	Jan.	29, 1903	55 00	12	"	660 00
"	"	" "	Jos. Sleath	Oct.	3, 1872	"	Sept.	1902	55 00	12	"	660 00
"	"	Quarantine station	Fred. Hargrave	April	25, 1871	"	Dec.	29, 1904	60 00	12	"	720 00
St. Stephen	"	Post office	Samuel Topping	April	2, 1839	Caretaker	May	25, 1887	41 66	12	"	500 00
Sussex	"	"	Mrs. N. Dryden	June	21, 1840	"	Mar.	26, 1901	33 33	12	"	400 00
Tracadie	"	Lazaretto	P. Arsenault	May	19, 1869	Fireman	Dec.	24, 1908	40 00	12	"	480 00
"	"	"	B. Brideau	July	10, 1886	"	Jan.	10, 1909	30 00	12	"	360 00
Woodstock	"	Public building	Walter Hay			Caretaker	Feb.	17, 1911	37 50	12	"	450 00
Acton Vale	P.Q.	Post office	J. B. Cantin	July	28, 1867	"	Sept.	9, 1910	33 33	12	"	400 00
Aylmer	"	"	A. Bourgeau, P.M.	Jan.	23, 1870	"	April	9, 1904	8 33	12	"	100 00
Buckingham	"	"	T. F. Bisson, P.M.	May	23, 1848	"	Feb.	3, 1903	10 00	12	"	120 00
Chicoutimi	"	Public building	G. A. Blais	Sept.	24, 1870	"	Dec.	4, 1907	40 00	12	"	480 00
Coaticook	"	"	Israel Baldwin	Nov.	16, 1839	"	June	27, 1889	33 33	12	"	400 00
Cookshire	"	Post office	S. Wright	June	25, 1856	"	Feb.	4, 1909	33 33	12	"	400 00
Drummondville	"	Public building	A. Pare	April	27, 1842	"	June	5, 1902	33 33	12	"	400 00
Farnham (West)	"	Post office	J. Belanger	Jan.	19, 1847	"	Jan.	30, 1906	25 00	12	"	300 00
Fraserville	"	"	W. D. Raymond	"	7, 1876	"	April	14, 1905	33 33	12	"	400 00
Granby	"	Public building	J. A. Beauchemin	May	1, 1862	"	May	12, 1903	25 00	12	"	300 00
Hochelaga	"	Post office	J. H. Brown, P.M.	Oct.	7, 1851	"	Mar.	27, 1902	16 66	12	"	200 00
Hull	"	"	J. T. Madore, P.M.	Dec.	1, 1843	"	"	8, 1900	12 50	12	"	150 00

STATEMENT showing the Names, &c., of the Engineers, Enginemen, Firemen, Caretakers, Hoist Attendants and Watchmen employed at Dominion Public Buildings on March 31, 1911—*Continued.*

Place.	Building.	Name.	Date of Birth	Position.	Date of Appointment.	Monthly Salary.	Time Employed each year.	Yearly Salary.
						$ cts.		$ cts.
Iberville "	Post office	A. Courtois	Jan. 20, 1869	Caretaker	May 7, 1907	40 00	12 months	480 00
Joliette "	"	A. Ratel	Dec. 29, 1845	"	Sept. 1, 1897	33 33	12 "	400 00
Knowlton P.Q.	"	F. A. Knowlton, P.M	June 10, 1855	"	June 12, 1909	12 50	12 "	150 00
Lachine	"	P. O. Roberts, P.M	Sept. 7, 1846	"	Jan. 26, 1899	8 33	12 "	100 00
Lachute "	"	D. Joss	Oct. 10, 1857	"	April 28, 1909	33 33	12 "	400 00
Laprairie "	"	Jos. Brisson, P.M	Nov. 11, 1869	"	Nov. 22, 1901	12 50	12 "	150 00
L'Assomption "	"	E. Dumoulong	Aug. 11, 1874	"	Feb. 22, 1910	25 00	12 "	300 00
Lévis "	"	C. Lamontagne	Dec. 28, 1850	"	Mar. 17, 1908	35 41	12 "	425 00
Longueuil "	"	F. X. Maillé	May 12, 1856	"	Mar. 16, 190	25 00	12 "	300 00
Magog "	"	N. Lacasse	June 16, 1869	"	July 1, 1909	33 33	12 "	400 00
Montreal "	Dominion buildings	J. T. Murphy	May 6, 1865	Chief engin'r	Mar. 2, 1903	108 33	12 "	1,300 00
Montreal "	Examining warehouse	M. Boyer	Feb. 18, 1848	Asst. engin'r	Mar. 4, 1882	65 00	12 "	780 00
" "	"	Art. Lesieur	June 22, 1868	Hoist attendant	April 18, 1905	50 00	12 "	600 00
" "	"	Jos. Forgues	May 15, 1874	Asst. engineer	Nov. 2, 1904	60 00	12 "	720 00
" "	"	Joe. Langevin	Mar. 10, 1850	Fireman	Oct. 18, 1904	50 00	12 "	600 00
" "	"	A. Nuttall	Feb. 15, 1872	Electrician	June 1, 1905	65 00	12 "	780 00
" "	"	J. B. Desjardins	Jan. 21, 1863	Cleaner	Jan. 26, 1907	46 00	12 "	552 00
" "	"	Samuel Lanctot	June 28, 1850	"	Nov. 23, 1905	46 00	12 "	552 00
" "	"	P. Prudhomme	Mar. 7, 1854	Hoist attendant	Mar. 19, 1906	50 00	12 "	600 00
" "	"	R. Barthe	July 12, 1863	"	May 1, 1906	50 00	12 "	600 00
" "	"	C. Varin	May 13, 1883	"	Jan. 21, 1911	50 00	12 "	600 00
" "	"	S. McGarry	June 15, 1873	"	Jan. 12, 1904	50 00	12 "	600 00
" "	"	J. Neville	Mar. 18, 1870	"	Jan. 12, 1904	50 00	12 "	600 00
" "	"	H. Marchand	Mar. 15, 1856	"	Oct. 7, 1904	50 00	12 "	600 00
" "	"	A. Drouin	June 14, 1868	"	Nov. 28, 1904	50 00	12 "	600 00
" "	"	Ald Desjardins	Sept. 3, 1859	Cleaner	June 30, 1905	45 00	12 "	540 00
" "	"	F. Nadon	June 15, 1847	"	Dec. 15, 1902	48 00	12 "	576 00
" "	"	A. Tremblay	April 12, 1862	Night fireman	Oct. 25, 1907	50 00	8 "	400 00
" "	"	A. Barrette	Aug. 28, 1873	Hoist attendant	July 21, 1908	60 00	12 "	720 00
" "	"	James Quinn	July 4, 1882	Freight hoist at.	July 2, 1908	60 00	12 "	720 00
" "	"	U. Paquette	Oct. 13, 1866	Cleaner	June 1, 1909	46 00	12 "	452 00
" "	"	A. Langevin	May 12, 1885	Asst. engineer	April 2, 1907	50 00	12 "	600 00
" "	Post office	L. D. Thibault	Jan. 28, 1861	Electrician	Dec. 15, 1905	70 00	12 "	840 00
" "	"	F. X. Lefebvre	Dec. 13, 1859	Asst. electrician	June 28, 1905	65 00	12 "	780 00
" "	"	Osias Renard	June 14, 1869	Night "	Feb. 2, 1907	65 00	12 "	780 00

"	"	"	I. Trudeau	Jan. 22, 1863	Caretaker	Oct. 1, 1902	60 00	12	"	..	720 00
"	"	"	Oscar Renaud	Feb. 19, 1862	Elevator man	Sept. 10, 1898	50 00	12	"	..	600 00
"	"	"	Art. Forget	July 25, 1867	" ..	Dec. 15, 1893	50 00	12	"	..	600 00
"	"	"	L. Brault	Dec. 29, 1854	" ..	Sept. 1, 1901	50 00	12	"	..	600 00
"	"	"	A. Bourassa	June 1, 1857	Freight hoist at.	Aug. 4, 1893	55 00	12	"	..	660 00
"	"	"	C. Berthiaume	Nov. 8, 1870	Night watchmn	July 2, 1902	55 00	12	"	..	660 00
"	"	"	O. de Ladurantaye	June 29, 1852	Pass. hoist att.	April 26, 1906	50 00	12	"	..	600 00
"	"	"	C. Vadebonecœur	May 17, 1842	Freight hoist at.	Feb. 6, 1894	55 00	12	"	..	660 00
"	"	"	A. Chaput	Aug. 28, 1854	Elevator man	Nov. 1, 1909	50 00	12	"	..	600 00
"	"	"	J. Murphy	Dec. 18, 1852	Day lobby keep	May 19, 1907	54 00	12	"	..	648 00
"	"	"	J. McClanaghan	May 14, 1860	Night lobby "	July 2, 1902	54 00	12	"	..	648 00
"	"	"	Alf. Trudeau	April 13, 1866	Freight hoist attendant.	Jan. 17, 1908	50 00	12	"	..	600 00
"	"	"	J. C. Thibault	Oct. 10, 1852	" ..	Dec. 2, 1909	60 00	12	"	..	720 00
"	"	"	Ls. Bédard	Aug. 18, 1854	Carpenter	April 1, 1908	65 00	12	"	..	780 00
"	"	"	Alex. Vallie	Aug. 4, 1847	"	Aug. 4, 1910	46 00	12	"	..	552 00
"	"	"	Gilb. Robert	Dec. 18, 1852	Watchman	July —, 1902	54 00	12	"	..	648 00
"	"	"	W. Pagé	Mar. 14, 1851	Cleaner	Nov. —, 1898	46 00	12	"	..	552 00
"	"	"	Ls. Aubé	Mar. —, 1857	"	July 11, 1898	46 00	12	"	..	552 00
"	"	"	C. Rochon	Jan. 18, 1850	"	Jan. 17, 1906	46 00	12	"	..	552 00
"	"	"	Ed. Baudette	Mar. 26, 1859	"	Oct. 18, 1904	46 00	12	"	..	552 00
"	"	"	N. Bissonnette	Mar. 28, 1852	"	May 19, 1907	46 00	12	"	..	552 00
"	"	"	P. Roy	Aug. 10, 1888	"	July 14, 1907	46 00	12	"	..	552 00
"	"	"	Jos. Laplante	Mar. 12, 1856	"	Dec. 12, 1907	46 00	12	"	..	552 00
"	"	"	Jos. Brunet	June 27, 1881	"	Oct. 7, 1908	46 00	12	"	..	552 00
"	"	"	D. Royer	.....	Charwoman	.....	23 00	12	"	..	276 00
"	"	"	A. Crochetiere	.....	"	.....	23 00	12	"	..	276 00
"	"	Postal Station "B"	T. Drolet	Mar. 11, 1852	Caretaker	Oct. 29, 1908	54 17	12	"	..	650 00
"	"	"	A. Arsenault	Mar. 2, 1866	Cleaner	Nov. —, 1906	46 00	12	"	..	552 00
"	"	Postal Station "C"	G. Robert	Nov. 17, 1842	"	Dec. 15, 1908	46 00	12	"	..	552 00
"	"	Postal Station "D"	J. H. Roy	June. 24, 1862	"	Sept. 1, 1900	50 00	12	"	..	600 00
"	"	Inland Revenue	Louis St. Jean	Sept. 17, 1840	Fireman	Dec. 1, 1892	50 00	12	"	..	600 00
"	"	"	Thos. Gauthier	July 10, 1865	Cleaner	Jan. 14, 1908	46 00	12	"	..	552 00
"	"	Custom House	C. Dandelin	June. 19, 1843	Caretaker	July 16, 1892	37 50	12	"	..	450 00
"	"	"	H. Valiquette	Dec. 30, 1871	Carpenter	Feb. 1, 1903	65 00	12	"	..	780 00
"	"	"	Art. Poirier	June 18, 1870	Asst. carpenter	Oct. 5, 1909	60 00	12	"	..	720 00
"	"	"	G. Flannigan	May 23, 1862	Electrician	Sept. 13, 1906	65 00	12	"	..	780 00
"	"	"	A. Cunningham	April 15, 1878	Night fireman	Jan. 2, 1909	50 00	12	"	..	600 00
"	"	"	C. Girard	.....	Cleaner	Oct. 28, 1910	50 00	12	"	..	600 00
"	"	"	F. X. Bernier	.....	"	Oct. 28, 1910	50 00	12	"	..	600 00
"	"	"	Jos. Beauvais	.....	"	.....	46 00	12	"	..	452 00
"	"	" and ex.war'h	B. Lajeunesse	Nov. 20, 1861	Fireman	Nov. 23, 1896	50 00	12	"	..	600 00
"	"	Dominion building	Jos. Renaud	April 3, 1863	Painter	April 1, 1910	76 00	12	"	..	912 00
Montmagny	"	Public building	C. Normand	Mar. 11, 1846	Caretaker	Oct. 1, 1907	33 33	12	"	..	400 00
Nicolet	"	"	U. Papillon	Mar. 16, 1843	"	Nov. 8, 1907	43 33	12	"	..	520 00
Nominingue	"	Immigration building	T. A. Christin	May 12, 1857	"	Mar. 20, 1908	25 00	12	"	..	300 00
Quebec	"	Examining warehouse	D. P. Kennedy	Feb. 9, 1865	Engineer	April 1, 1897	75 00	12	"	..	900 00
"	"	" "	J. G. McLaughlin	Nov. 15, 1880	Fireman	July 4, 1906	53 33	12	"	..	640 00
"	"	Cullers office	James O'Neil	Aug. 15, 1861	"	Aug. 1, 1894	45 00	12	"	..	540 00
"	"	Custom office	John R. Mountain	Nov. 1, 1848	"	Nov. 10, 1888	45 00	12	"	..	540 00
"	"	Post office	F. J. Cooper	July 8, 1858	Fireman	June 15, 1895	60 00	12	"	..	720 00

STATEMENT showing the Names, &c., of the Engineers, Enginemen, Firemen, Caretakers, Hoist Attendants and Watchmen employed at Dominion Public Buildings on March 31, 1911—*Continued.*

Place.	Building.	Name.	Date of Birth	Position.	Date of Appointment.	Monthly Salary.	Time Employed each year.	Yearly Salary.
						$ cts.		$ cts.
Quebec..... "	Post Office (St. Sauveur).	C. Turcotte.....	June 14, 1866	Caretaker.....	Jan. 8, 1907	12 50	12 months..	150 00
" ..... "	"	A. Trudel.....	May 9, 1871	Elevator man...	April 1, 1909	50 00	12 " ..	600 00
" ..... "	"	R. Roy.....	Sept. 23, 1878	Asst. elev. man.	Feb. 16, 1910	25 00	12 " ..	300 00
" ..... "	"	J. D. Villeneuve.....	Oct. 22, 1875	Messenger.....	April 17, 1907	50 00	12 " ..	600 00
" ..... "	Public buildings.....	A. Petitclerc.....	Oct. 18, 1865	Carpenter.....	Feb. 5, 1910	60 00	12 " ..	720 00
" ..... "	"	D. Lortie.....	Oct. 16, 1853	"	" 5, 1910	60 00	12 " ..	720 00
" ..... "	"	A. Lacasse.....	" 19, 1877	Electrician.....	July 7, 1910	75 00	12 " ..	900 00
" ..... "	Post office (St. Rochs)....	J. B. Turcotte.....	Sept. 22, 1860	Caretaker.....	May 7, 1910	33 33	12 " ..	400 00
" ..... "	Governor General Quart'rs	M. Lewis.....	May 6, 1871	"	Sept. 1, 1905	1 50	per day 12m	547 50
Peribonka..... "	Immigration building.....	E. Roy.....	Dec. 14, 1877	"	Oct. 1, 1902	25 00	12 months..	300 00
Pierreville..... "	Public building.....	Mrs. S. G. Boucher, P.M..	May 2, 1853	"	Dec. 1, 1909	12 50	12 " ..	150 00
Plessisville..... "	Post office.....	Geo. Savoies.....	Feb. 14, 1856	"	Dec. 21, 1909	10 00	12 " ..	120 00
Roberval..... "	Immigration building.....	G. Audet.....	Nov. 18, 1849	"	May 31, 1907	25 00	12 " ..	300 00
Rimouski..... "	Post office.....	A. Lepage.....	Feb. 7, 1866	"	Jan. 1, 1901	25 00	12 " ..	300 00
Richmond..... "	Public building.....	H. Desmarais.....	July 14, 1869	"	May 7, 1898	33 33	12 " ..	400 00
Sherbrooke..... "	"	O. Deseve.....	Aug. 6, 1848	"	April 2, 1898	33 33	12 " ..	400 00
Sorel..... "	Post office.....	C. Robitaille.....	Jan. 22, 1848	"	Sept. 1, 1897	40 00	12 " ..	480 00
St. Hyacinthe..... "	Public building.....	J. Girouard.....	Sept. 16, 1838	"	Aug. 2, 1905	43 33	12 " ..	520 00
" ..... "	Inland revenue.....	E. Clapin.....	April 9, 1844	"	July 19, 1904	33 33	12 " ..	400 00
" ..... "	Drill hall.....	N. Langelier.....	Sept. 10, 1841	Fireman.....	Sept. 17, 1907	50 00	12 " ..	600 00
St. Jean..... "	Custom house.....	L. Forrant.....	Jan. 21, 1849	Caretaker.....	April 14, 1897	29 16	12 " ..	350 00
" ..... "	Post office.....	W. Brosseau, P.M.....	Aug. 12, 1840	"	Mar. 25, 1909	20 83	12 " ..	250 00
St. Jerome..... "	Public building.....	J. Savard.....	Oct. 24, 1859	"	Sept. 1, 1900	33 33	12 " ..	400 00
St. Louis du Mile End "	Post office.....	M. A. Campeau, P.M.....	Mar. 6, 1846	"	May 28, 1905	33 33	12 " ..	400 00
Terrebonne..... "	Public building.....	N. Sasseville.....	Jan. 29, 1844	"	Jan. 2, 1905	25 00	12 " ..	300 00
Thetford Mines..... "	Post office.....	J. Rousseau, P.M.....	Dec. 22, 1859	"	July 1, 1905	12 50	12 " ..	150 00
Three Rivers..... "	Public building.....	Ph. Gravelle.....	June 3, 1828	"	Feb. 1, 1891	50 00	12 " ..	600 00
Valleyfield..... "	"	J. B. Laniel.....	Oct. 20, 1862	"	Feb. 13, 1905	33 33	12 " ..	400 00
Victoriaville..... "	"	G. Beaudet.....	Feb. 20, 1862	"	Mar. 3, 1904	6 25	12 " ..	75 00
Alexandria, ... Ont.	"	D. K. McDonald.....	July 4, 1847	"	Oct. 17, 1906	41 66	12 " ..	500 00
Almonte..... "	Post office.....	P. Burns.....	Jan. 28, 1861	"	Sept. 1, 1907	33 33	12 " ..	400 00
Amherstburg..... "	"	Mrs. R. Elliott.....	Dec. 28, 1854	"	June 6, 1905	33 33	12 " ..	400 00
Arnprior..... "	Public building.....	R. Tait.....	Oct. 16, 1845	"	Dec. 1, 1909	33 33	12 " ..	400 00
Barrie..... "	Post office.....	E. Sivigny.....	Mar. 19, 1847	"	May 1, 1903	33 33	12 " ..	400 00
Brockville..... "	"	C. F. Gray.....	April 28, 1861	"	April 2, 1908	41 66	12 " ..	500 00

Brantford	"	"	John Squire	"	24, 1842	"	Oct.	27, 1880	50 00	12	"	600 00
Bridgeburg	"	Public building	Wm. Hanna	Aug.	15, 1863	"	"	3, 1905	25 00	12	"	300 00
Bowmanville	"	"	W. W. Allin	Jan.	13, 1850	"	Feb.	10, 1905	33 33	12	"	400 00
Belleville	"	Post office	S. Haight	Aug.	26, 1857	"	Jan.	24, 1901	50 00	12	"	600 00
Berlin	"	"	J. Clements	June	21, 1840	"	May	15, 1900	33 33	12	"	400 00
Brampton	"	"	J. Foster	Sept.	16, 1846	"	Aug.	1, 1906	33 33	12	"	400 00
Carleton Place	"	"	Jas. F. Halpenny	April	17, 1858	"	May	13, 1892	25 00	12	"	300 00
Chatham	"	"	W. W. Mitchell	May	25, 1848	"	Jan.	7, 1885	50 00	12	"	600 00
Cornwall	"	"	R. Conroy	Feb.	6, 1848	Caretaker, &c.	April	1, 1897	33 33	12	"	400 00
Cayuga	"	"	G. A. Gibson, P.M	May	29, 1861	"	Sept.	3, 1891	4 16	12	"	50 00
Clinton	"	"	J. Scott, P.M	Jan.	21, 1856	"	Feb.	9, 1904	16 66	12	"	200 00
Cobourg	"	"	J. Staples	June	3, 1834	"	Dec.	10, 1906	33 33	12	"	400 00
Deseronto	"	Public building	M. Hart	Jan.	15, 1862	"	July	1, 1903	33 33	12	"	400 00
Dundas	"	"	Wm. Graham, P.M	Dec.	5, 1853	"	"	1, 1898	4 16	12	"	50 00
Fort William	"	"	D. J. McCallum	April	5, 1834	"	Sept.	21, 1904	41 66	12	"	500 00
Galt	"	"	T. Barrett	June	17, 1861	"	Aug.	1, 1902	41 66	12	"	500 00
Glencoe	"	"	E. Waterworth	Aug.	19, 1852	"	Feb.	28, 1910	33 33	12	"	400 00
Guelph	"	"	R. McLeod	July	30, 1865	"	May	25, 1901	41 66	12	"	500 00
Goderich	"	"	G. Bissett	April	14, 1851	"	Sept.	1, 1897	33 33	12	"	400 00
Hamilton	"	Dominion building	Alfred Barnard	Dec.	27, 1847	"	Dec.	10, 1894	50 00	12	"	600 00
"	"	"	J. Wigglesworth	Aug.	7, 1863	Fireman	Oct.	1, 1896	60 00	12	"	720 00
"	"	"	Thomas Nicholson	Dec.	17, 1857	Engineer	Mar.	2, 1887	50 00	12	"	600 00
"	"	"	T. C. Butler		1876	Cleaner	June	10, 1911	50 00	12	"	600 00
"	"	"	C. Partridge	April	2, 1869	"	April	12, 1909	50 00	12	"	600 00
"	"	"	Mrs. C. White	"	16, 1857	"	Mar.	6, 1907	$1 per dy			315 00
Hawkesbury	"	Public building	A. Marleau	Sept.	22, 1857	Caretaker	Aug.	7, 1906	33 33	12 months		400 00
Ingersoll	"	"	John McDonald	June	30, 1841	"	Nov.	20, 1900	33 33	12	"	400 00
Kenora	"	"	Mrs. J. Link	May	10, 1850	"	Dec.	7, 1901	33 33	12	"	400 00
Kincardine	"	"	G. D. Morrison, P.M	Nov.	14, 1860	"	May	17, 1910	16 66	12	"	200 00
Kingston	"	Post office	Jas. Kehoe	June	21, 1873	"	May	15, 1905	48 33	12	"	580 00
"	"	Inland revenue building	J. Lawless		1833	"	Feb.	8, 1908	41 66	12	"	500 00
"	"	" " "	P. Clark	May	23, 1860	Fireman	Nov.	1, 1909	15 00	12	"	180 00
London	"	Custom house	M. Mulkern	Sept.	4, 1837	Caretaker	Sept.	18, 1888	50 00	12	"	600 00
"	"	"	Wm. Greer	Oct.	12, 1839	"	Mar.	16, 1884	33 33	12	"	400 00
"	"	Post office	J. Gilbanks	Dec.	4, 1861	"	May	31, 1906	41 66	12	"	500 00
"	"	"	W. Service	Mar.	20, 1852	Engineer	Oct.	7, 1909	50 00	12	"	600 00
Lindsay	"	Post office and cust. house	Wm. J. Healey	May	29, 1873	Caretaker	Nov.	10, 1908	33 33	12	"	400 00
Markham	"	Public building	Chs. Wales	April	12, 1864	"	Aug.	9, 1909	50 00	12	"	600 00
Napanee	"	Post office and cust. house	Mrs. C. E. Webster	July	12, 1846	"	Oct.	4, 1900	33 33	12	"	400 00
Niagara Falls	"	Public building	W. J. Brown	May	1, 1862	"	June	1, 1910	37 50	12	"	450 00
North Bay	"	"	L. A. Gauthier	May	15, 1857	"	June	13, 1908	55 00	12	"	660 00
Orangeville	"	"	D. McPherson	April	30, 1851	"	July	15, 1900	33 33	12	"	400 00
Orillia	"	"	John Frawley	Mar.	14, 1844	"	Nov.	1, 1898	29 16	12	"	350 00
Oshawa	"	"	A. Brodie	Sept.	28, 1850	"	Dec.	11, 1905	37 50	12	"	450 00
Ottawa	"	Observatory	A. Villeneuve	Mar.	11, 1857	"	"	14, 1904	55 00	12	"	660 00
"	"	"	G. Sparks	Oct.	16, 1858	Engineer	Nov.	1, 1904	70 00	12	"	840 00
Owen Sound	"	Public building	H. Wright	Nov.	24, 1841	Caretaker	Mar.	18, 1908	33 33	12	"	400 00
Paris	"	"	Sam Lee	Oct.	24, 1841	"	July	7, 1902	33 33	12	"	400 00
Parkhill	"	"	W. H. Taylor, P.M	Aug.	4, 1847	"	May	12, 1910	16 66	12	"	200 00
Pembroke	"	Inland revenue building	H. Church	Nov.	15, 1864	"	Jan.	5, 1910	33 33	12	"	400 00
Peterborough	"	Post office	G. Stenton	Sept.	17, 1847	"	Dec.	7, 1908	33 33	12	"	400 00

STATEMENT showing the Names, &c., of the Engineers, Enginemen, Firemen, Caretakers, Hoist Attendants and Watchmen employed at Dominion Public Buildings on March 31, 1911—*Continued.*

Place.	Building.	Name.	Date of Birth.	Position.	Date of Appointment.	Monthly Salary.	Time Employed each year.	Yearly Salary.
						$ cts.		$ cts.
Peterborough..... Ont.	Custom house.....	Wm. Taylor.....	Nov. 25, 1839	Caretaker.....	Jan. 26, 1899	25 00	12 months..	300 00
Petrolea..... "	Post office.....	James Shaw.....	June 11, 1842	"	Sept. 12, 1904	33 33	12 " ..	400 00
Picton..... "	Public building.....	D. Welbanks.....	Feb. 8, 1850	"	April 11, 1902	33 33	12 " ..	400 00
Port Arthur..... "	"	D. McKenzie.....	Sept. 12, 1843	"	May 14, 1906	33 33	12 " ..	400 00
Port Colborne..... "	Post office.....	Wm. Armstrong.....	" 9, 1846	"	June 11, 1888	29 16	12 " ..	300 00
Port Hope..... "	"	Jos. Curtis.....	1884	"	May 1, 1905	33 33	12 " ..	400 00
Prescott..... "	"	R. Birks.....	April 6, 1822	"	" 1, 1899	33 33	12 " ..	400 00
Renfrew..... "	Public building.....	R. Sim.....	Feb. 10, 1839	"	" 11, 1909	33 33	12 " ..	400 00
Sandwich..... Ont.	Public building.....	John McLeod.....	Sept. 14, 1883	"	July 22, 1907	25 00	12 " ..	300 00
Sarnia..... "	"	J. H. Dyble.....	Aug. 25, 1860	"	Nov. 7, 1903	33 33	12 " ..	400 00
Sault Ste. Marie..... "	"	P. J. Racine.....	Sept. 25, 1865	"	Sept. 25, 1905	33 33	12 " ..	400 00
Simcoe..... "	"	N. Porter.....	.....	"	Nov. 21, 1910	40 00	12 " ..	480 00
Smiths Falls..... "	"	R. W. Lewis.....	Aug. 19, 1863	"	Jan. 8, 1896	33 33	12 " ..	400 00
Stratford..... "	Post office, &c.....	J. P. Murray.....	July 29, 1850	Engineer.....	Jan. 26, 1900	50 00	12 " ..	600 00
St. Catharines..... "	"	A. Clark.....	Sept. 14, 1860	Caretaker.....	Dec. 12, 1904	33 33	12 " ..	400 00
St. Mary's..... "	Public building.....	W. Hoyt.....	.....	"	Mar. 16, 1908	33 33	12 " ..	400 00
St. Thomas..... "	"	G. Luton.....	May 25, 1857	"	April 14, 1903	37 50	12 " ..	450 00
Strathroy..... "	"	Wm. J. Johnson.....	May 12, 1840	"	Oct.. 25, 1890	33 33	12 " ..	400 00
Toronto..... "	Dominion building.....	H. E. Hamilton.....	April 14, 1838	Superintendent..	April 10, 1902	100 00	12 " ..	1,200 00
" ..... "	Inland revenue building...	C. H. Baillie.....	Sept. 22, 1852	Fireman.....	Jan. 13, 1891	50 00	12 " ..	600 00
" ..... "	Custom house.....	R. Eyre.....	Oct.. 11, 1849	"	Mar. 15, 1895	60 00	12 " ..	720 00
" ..... "	"	Ed. Switzer.....	Oct. 4, 1856	Hoist attendant	Aug. 18, 1901	55 00	12 " ..	660 00
" ..... "	"	T. J. Enright.....	Oct.. —, 1862	Caretsker.....	Dec. 18, 1906	50 00	12 " ..	600 00
" ..... "	"	W. J. Murphy.....	Sept. 16, 1868	Cleaner.....	Sept. 28, 1905	50 00	12 " ..	600 00
" ..... "	"	H. Somers.....	May —, 1851	"	Mar. 3, 1907	50 00	12 " ..	600 00
" ..... "	"	Wm. Stringer.....	Jan. 22, 1881	"	Oct.. —, 1905	50 00	12 " ..	600 00
" ..... "	Examining warehouse.....	James Cosgrove.....	Feb. 10, 1844	Engineer.....	Oct.. 28, 1874	75 00	12 " ..	900 00
" ..... "	" "	Ed. Appleton.....	Sept. 26, 1864	Fireman.....	Sept. 23, 1886	65 00	12 " ..	780 00
" ..... "	" "	J. Jennings.....	Sept. 1, 1867	Hoist attendant	May 25, 1907	55 00	12 " ..	660 00
" ..... "	" "	R. C. Cussack.....	Mar. 26, 1875	" ..	Sept. 0, 1907	50 00	12 " ..	660 00
" ..... "	" "	F. Simpson.....	Jan. 8, 1859	Watchman.....	Sept. 1, 1903	55 00	12 " ..	660 00
" ..... "	" "	Thos. Jones.....	Nov. 10, 1853	"	April 4, 1902	55 00	12 " ..	660 00
" ..... "	" "	Wm. Scott.....	———, 1838	"	June 1, 1905	2 00	p.d.....	730 00
" ..... "	" "	J. Gormally.....	Nov. 26, 1872	Hoist attendant	Oct.. 31, 1901	55 00	12 months..	660 00
" ..... "	Union Station.....	Jas. Cashin.....	Jun. 28 1866	Elevator man..	. . . . .	55 00	12 " ..	660 00

Toronto	"	Post office	J. Somers	April 8, 1835	Fireman	Oct. 9, 1897	60 00	12	"			720 00
"	"	"	P. Cassidy	May 2, 1862	"	May 8, 1906	60 00	12	"			720 00
"	"	"	T. Letray	——1858	"	May 10, 1907	60 00	12	"			720 00
"	"	"	W. J. Graham	Mar. 16, 1840	Carpenter	Oct. 16, 1896	65 00	12	"			780 00
" Junction	"	"	J. Devins	July 18, 1847	Caretaker	Feb. 3, 1905	45 00	12	"			540 00
"	"	General post office	W. Gribble	Mar. 7, 1860	Cleaner	Feb. —, 1905	55 00	12	"			660 00
"	"	"	F. Edwards	May 20, 1872	"	July 18, 1904	50 00	12	"			600 00
"	"	"	Chas. Gregory	July 27, 1857	"	Feb. —, 1905	50 00	12	"			600 00
"	"	"	A. E. Hale	July 8, 1881	"	May 1, 1906	50 00	12	"			600 00
"	"	"	Jno. Cotton	July 31, 1864	"	Feb. 17, 1908	50 00	12	"			600 00
"	"	"	Geo. McCallum	July 8, 1868	"	Feb. 17, 1909	50 00	12	"			600 00
"	"	"	Thos Russell	April 27, 1876	"	Oct. 20, 1909	50 00	12	"			600 00
"	"	Postal station "A"	E. Tooze	Dec. 8, 1865	Elevatorman	Dec 15, 1909	55 00	12	"			660 00
"	"	" "A"	O. Johnston	July 18, 1874	"	Feb. 14, 1910	55 00	12	"			660 00
"	"	" "A," "B" and examining warehous	eL. Deas	Jan. 15, 1854	Cleaner	July —, 1907	50 00	12	"			600 00
"	"	Postal Station "C"	Jas. Rae	Feb. 17, 1864	Caretaker	Jan. 12, 1884	45 00	12	"			540 00
"	"	" "F"	J. W. Thornton	April 11, 1867	Cleaner	April 7, 1907	50 00	12	"			600 00
"	"	" "G"	Jno. Gibbs	Mar. 9, 1859	"	May 5, 1907	50 00	12	"			600 00
Trenton		Public building	A. W. Smith	Nov. 7, 1844	"	May 31, 1910	33 33	12	"			400 00
Walkerton	"	"	Mrs. T. Gibson	Jan. 21, 1861	"	May 12, 1905	33 33	12	"			400 00
Welland	"	"	D. McIlvride	May 16, 1876	Caretaker	June 9, 1910	41 66	12	"			500 00
Whitby		"	Alex. Whitelaw	April 30, 1840	"	Sept. 1 , 1910	33 33	12	"			400 00
Windsor	"	Post office	I. Belleperche	Oct. 26, 1848	Engineman	Dec. 24, 1897	50 00	12	"			600 00
"	"	"	W. Curtis	Mar. 6, 1844	Caretaker	Nov. 9, 1880	33 33	12	"			400 00
Wingham	"	Public building	P. Fisher, P. M.	Dec. 12, 1832	Caretaker	Nov. 19,1906	16 66	12	"			200 00
Woodstock	"	"	Robert Kerr	June 6, 1864	Engineer	Dec. 11, 1901	41 66	12	"			500 00
Brandon	Man.	Armoury	T. Giles	Mar. 30, 1843	Fireman	Aug. 1, 1897	65 00	12	"			780 00
Dauphin	"	Public building	H. Somerville	June 8, 1872	Caretaker	Dec. 4, 1909	45 00	12	"			540 00
Emerson	"	"	Chas. Thain	July 17, 1880	"	Sept. 1, 1910	41 66	12	"			500 00
Neepawa	"	"	John Stevens	Jan. 10, 1863	"	Nov. 1, 1909	55 00	12	"			660 00
Portage la Prairie	"	"	J. S. Telfer	July 25, 1840	Fireman	July 1, 1904	45 00	12	"			540 00
Selkirk	"	"	W. Kidd	May 11, 1879	"	Mar. 1, 1909	55 00	12	"			660 00
St. Boniface	"	"	J. A. S. Chausse	Aug. 20, 1867	"	Oct. 1, 1908	55 00	12	"			660 00
Winnipeg	"	Custom house	W. Harrington	Sept. 18, 1871	Caretaker	Sept. 29, 1908	60 00	12	"			720 00
"	"	New Post office	Jos. Hay	May 4, 1853	Engineer	July 20, 1905	90 00	12	"			1,080 00
"	"	"	Wm. Clark	Oct. 8, 1868	Fireman	July 1, 1908	70 00	12	"			840 00
"	"	"	G. H. Kiltson	Sept. 11, 1864	"	Oct. 6, 1910	70 00	12	"			840 00
"	"	"	N. Thorarinson	Feb. 10, 1874	Elevatorman	July 10, 1908	60 00	12	"			720 00
"	"	"	A. R. Bush	Mar. 18, 1872	"	July 15, 1909	65 00	12	"			780 00
"	"	"	F. Jenkins	Feb. 21, 1874	"	July 10, 1908	65 00	12	"			780 00
"	"	"	Thos. McMaighan	Oct. 10, 1879	"	Nov. 23, 1908	65 00	12	"			780 00
"	"	"	Mrs. M. Pugsley	Oct. 13, 1857	Cleaner	Sept. 19, 1908	95 00	12	"			1,140 00
"	"	"	Mrs. E. Fentrell	July 15, 1860	"	April 17, 1910	74 00	12	"			988 00
"	"	"	Mrs. E. J. Buck	Dec. 24, 1861	"	Sept. 1, 1909	24 00	12	"			288 00
"	"	"	W. J. Smith	Mar. 27, 1863	Caretaker	Mar. 31, 1910	60 00	12	"			720 00
"	"	Postal Station "B"	John Lamb	Nov. 6, 1849	Caretaker	May 16, 1908	60 00	12	"			720 00
"	"	Public buildings	A. H. Latour	Mar. 25, 1876	Electrician	Sept. 16, 1908	100 00	12	"			1,200 00
"	"	New examining warehouse	E. L. Campbell	Sept. 18, 1882	Engineer	Sept. 16, 1908	85 00	12	"			1,020 00
"	"	" "	T. Sunders	Oct. 25, 1848	Fireman	Nov. 23, 1908	70 00	12	"			840 00
"	"	" "	J. Fontaine	April 26, 1866	Elevatorman	May 19, 1908	65 00	12	"			780 00

STATEMENT showing the Names, &c., of the Engineers, Enginemen, Firemen, Caretakers, Hoist Attendants and Watchmen employed at Dominion Public Buildings on March 31, 1911—*Concluded.*

Place.		Building.	Name.	Date of Birth.	Position.	Date of Appointment.	Monthly Salary.	Time Employed each year.	Yearly Salary.
							$ cts.		$ cts.
Winnipeg	Man.	New examining warehouse	J. Knott	Jan. 21, 1864	Elevatorman	Oct. 6, 1910	65 00	12 months	780 00
"	"	" "	John Kennedy	April 1, 1867	Fireman	Oct. 6, 1910	65 00	12 "	780 00
"	"	" "	S. B. Jeffery	April 9, 1878	Caretaker	Oct. 6, 1910	80 00	12 "	960 00
"	"	" "	John Rohan	April 16, 1879	Fireman	Oct. 6, 1910	65 00	12 "	780 00
"	"	Old post office	M. McIvor	Nov. 12, 1867	Fireman	Oct. 15, 1909	60 00	12 "	720 00
"	"	"	Joseph Coutu	May 10, 1843	Hoist attendant	Mar. 16, 1887	55 00	12 "	660 00
"	"	"	A. Boiteau	Sept. 23, 1860	Night watchmn	April 4, 1905	60 00	12 "	720 00
"	"	Public buildings	Wm. Johnson	June 14, 1867	Carpenter	Sept. 1, 1906	75 00	12 "	900 00
Calgary	Alta.	Post Office	J. G. Adamson	May 21, 1872	Caretaker	June 6, 1907	75 00	12 "	900 00
"	"	"	W. T. Madden	April 27, 1839	Elevatorman	April 27, 1908	50 00	12 "	600 00
"	"	"	A. W. Barber		Asst. caretaker	April 22, 1910	75 00	12 "	900 00
Edmonton	"	"	E. G. Henry	Mar 30, 1873	Caretaker	Mar. 9, 1907	75 00	12 "	900 00
"	"	New post office	R. L. Haskill	Nov. 3, 1850	"	Oct. 20, 1909	75 00	12 "	900 00
"	"	"	S. Nevezas	Sept. 13, 1877	Asst. caretaker	Oct. 20, 1909	70 00	12 "	840 00
"	"	"	Ed. Cummings	May 3, 1862	Fireman	Nov. 22, 1909	70 00	12 "	840 00
"	"	"	T. Greaves	Nov. 1, 1850	Elevatorman	May 19, 1910	60 40	12 "	720 00
"	"	Dominion Lands	J. Duggan	April 19, 1871	Caretaker	Nov. 27, 1909	25 00	12 "	300 00
Lethbridge	Alta.	Public building	W. C. Norman	Feb. 7, 1876	Caretaker	Dec. 14, 1909	50 00	12 "	600 00
Medicine Hat	"	"	Alex. Keith	Feb. 23, 1884	"	Dec. 4, 1908	70 00	12 "	840 00
Red Deer	"	Court house, &c	S. M. Bannerman	July 12, 1835	"	July 20, 1905	55 00	12 "	660 00
Estevan	Sask.	Public building	R. Murray	Sept. 27, 1856	"	May 23, 1910	45 00	12 "	540 00
Maple Creek	"	"	W. A. Douglass, P.M.	Feb. 27, 1856	"	June 25, 1909	16 66	12 "	200 00
Moosejaw	"	"	R. West	Sept. 12, 1855	"	Sept. 21, 1906	50 00	12 "	600 00
Prince Albert	"	"	R. D. Robertson	Aug. 18, 1877	"	Jan. 15, 1906	75 00	12 "	900 00
"	"	"	F. Ferdinando	Jan. 17, 1886	Fireman	Jan. 1, 1910	60 00	12 "	720 00
"	"	"	Mrs. N. Belfray		Charwoman	Mar. 6, 1911	30 00	12 "	360 00
Regina	"	Land office	W. J. Gore	July 22, 1863	Caretaker	May 6, 1901	50 00	12 "	600 00
"	"	"	T. Perkins	Sept. 14, 1852	"	Sept. 24, 1906	50 00	12 "	600 00
"	"	Post office	John Malcolmson	Nov. 9, 1857	"	Sept. 5, 1906	60 00	12 "	720 00
"	"	"	T. Jackson	June 28, 1879	Fireman	Jan. 13, 1909	50 00	12 "	600 00
"	"	"	Mrs. L. Diffenbuff		Charwoman	Nov. 5, 1909	40 00	12 "	480 00
Saskatoon	"	Public building	W. Tyrie	Dec. 15, 1864	Caretaker	Jan. 7, 1911	75 00	12 "	900 00
Yorkton	"	"	G. Tehrenback		"		45 00	12 "	540 00
Atlin	B.C.	"	J. A. Fraser	Jan. 1, 1851	"	June 26, 1901	12 50	12 "	150 00
Cumberland	"	"	T. Cook		"	July 7, 1910	50 00	12 "	600 00

Fernie	"	Post office	R. H. McEwan	Dec. 13, 1857	"	Jan. 21, 1910	70 0012	"	..	840 00
Kamloops	"	"	W. W. Taylor		"	Dec. 9, 1910	50 0012	"	..	600 00
Ladysmith	"	"	Robt. Bell	Feb. 29, 1840	"	April 1, 1909	50 0012	"	..	600 00
Nanaimo	"	Public building	J. Thompson	Sept. 2, 1836	"	May 1, 1897	60 0012	"	..	720 00
Nelson	"	"	B. B. Smith	Sept. 12, 1845	"	Mar. 9, 1903	50 0012	"	..	600 00
New Westminster	"	Post office	L. Thornbar	April 4, 1846	"	July 11, 1906	50 0012	"	..	600 00
"	"	Indian, &c., building	A. H. Oakley	April 26, 1864	"	Feb. 2, 1909	50 0012	"	..	600 00
Rossland	"	Post office	H. McQuade	Dec. 24, 1851	"	Aug. 1, 1906	50 0012	"	..	600 00
Vancouver	"	Examining warehouse	P. Powers	Mar. 21, 1836	Watchman	Feb. 10, 1901	55 0012	"	..	660 00
"	"	New public building	G. Wilson	June 4, 1836	Elevatorman	Oct. 8, 1909	60 0012	"	..	720 00
"	"	" "	W. J. Chisholm	Sept. 18, 1893	"	Feb. 14, 1910	60 0012	"	..	720 00
"	"	" "	Jas. Mulvaney	Dec. 18, 1885	Asst. Caretaker	Mar. 1, 1910	60 0012	"	..	720 00
"	"	" "	John Dunsmuir	Nov. 16, 1858	Cleaner	Jan. 10, 1910	65 0012	"	..	780 00
"	"	" "	D. Inches	Dec. 9, 1856	Engineer	Feb. 1, 1909	90 0012	"	..	1,080 00
"	"	" "	Geo. Small		Cleaner	June 13, 1910	65 0012	"	..	780 00
"	"	" "	Thos. A. Smith	Oct. 18, 1870	"		65 0012	"	..	780 00
"	"	" "	F. Patterson		"		60 0012	"	..	720 00
"	"	" "	C. P. Sullivan		"		65 0012	"	..	780 00
"	"	" "	C. F. Rust		"	Mar. 11, 1911	65 0012	"	..	780 00
"	"	" "	A. J. Chisholm	April 18, 1851	Caretaker	Oct. 1, 1903	75 0012	"	..	900 00
Victoria	"	New Dominion building	Wm. McKay	Dec. 31, 1857	"	Feb. 4, 1898	50 0012	"	..	600 00
"	"	" " "	T. Campbell	June 24, 1848	Asst. caretaker	Oct. 1, 1906	65 0012	"	..	780 00
"	"	" " "	W. Dick	1854	Fireman	Oct. 1, 1908	65 0012	"	..	780 00
"	"	" " "	W. Robinson	July 4, 1848	Elevatorman	Sept. 1, 1907	60 0012	"	..	720 00
"	"	" " "	F. T. McIlmoyle	Dec. 24, 1884	"	Aug. 1, 1907	60 0012	"	..	720 00
"	"	" " "	C. Minkles	June 27, 1852	Cleaner	Dec. 20, 1909	65 0012	"	..	780 00
"	"	Old custom house	Geo. Lyoll	Feb. 12, 1843	Caretaker	May 8, 1900	60 0012	"	..	720 00
"	"	Old post office	W. J. Bowden	Mar. 25, 1866	"	Oct. 1, 1908	20 0012	"	..	240 00
Dawson	Y.T.	Post office	E. Lemieux	Oct. 21, 1881	"	Sept. 19, 1907	160 0012	"	..	1,920 00
"	"	"	F. H. Elliott		Nightman		160 0012	"	..	1,920 00
"	"	Administration building	Jos. Pelland	Mar. 11, 1882	Charman	Oct. 1, 1909	160 0012	"	..	1,920 00
"	"	" " "	J. Boutin	Oct. 13, 1876	Caretaker	Dec. 1, 1901	160 0012	"	..	1,920 00
"	"	" " "	Mde A. Misner	Sept. 6, 1860	Charwoman	" 1, 1901	150 0012	"	..	1,800 00
"	"	" " "	S. S. Comee	Aug. 9, 1853	Nightman	Sept. 16, 1908	160 0012	"	..	1,920 00
"	"	" " "	J. Ballentine	Mar. 16, 1866	Fireman	Jan. 1, 1907	160 0012	"	..	1,920 00
"	"	Commissioner's residence	N. P. McDonald	Oct. 8, 1879	Caretaker	Dec. 1, 1905	160 0012	"	..	1,920 00
"	"	" " "	W. Harkan	Mar. 16, 1848	Nightman	Oct. 1, 1905	160 0012	"	..	1,920 00
"	"	" " "	Mrs. Ida Joitac	April 27, 1858	Charwoman	Oct. 1, 1908	100 0012	"	..	1,200 00
"	"	Police court	J. B. Deslauriers	July 12, 1875	Caretaker	June 1, 1906	160 0012	"	..	1,920 00
"	"	Court house	H. DeVilliers	May 7, 1872	"	May 21, 1902	160 0012	"	..	1,920 00
White Horse	"	Public building	C. J. McLennan	Dec. 22, 1850	"	Oct. 30, 1902	125 0012	"	..	1,500 00

JOS. VINCENT.

CANADA

REPORT OF THE MINISTER OF PUBLIC WORKS

REPORTS

OF THE

OTTAWA RIVER STORAGE

AND

GEODETIC LEVELLING

FROM

HALIFAX, N.S., to ROUSES POINT, N.Y.

Submitted in accordance with the Provisions of Chapter 36, Section 37 of the Revised Statutes of Canada

VOL. II

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1912

[No. 19—1912.]

CONTENTS

VOLUME I.

Contains the report of the Minister of Public Works on the works under his control for the fiscal year ended March 31, 1911.

VOLUME II.

Contains report on the Ottawa River storage scheme
and
Reports on the Geodetic Levelling, from Halifax, N.S., to Rouses Point, N.Y.

To His Royal Highness the Duke of Connaught, Governor General of Canada.

I have the honour to lay before Your Royal Highness the Report of the Department of Public Works of Canada, Volume II, for fiscal period ended March 31, 1911.

I have the honour to be,

Sir,

Your Royal Highness's most obedient servant,

F. D. MONK,

Minister of Public Works

OTTAWA, November 12, 1911.

DEPARTMENT OF PUBLIC WORKS, CANADA.

Honourable F. D. MONK,
Minister of Public Works.

SIR:—

I have the honour to present herewith the Second Annual Progress Report of the Engineer in charge, Mr. C. R. Coutlée, M. Can. Soc. C.E., in relation to the construction of storage reservoirs on the Upper Ottawa River.

This report covers the period from the 1st of April, 1910, to the 31st of March, 1911, and gives full details of all the construction work performed during the fiscal year on the reserve dams undertaken, as well as the result of further explorations and hydraulic investigations made regarding possible additional storage.

Before giving a brief review of the work performed during the last fiscal year, it is necessary, however, for a better understanding of the storage scheme, now under development, to refer to the report of the previous year, which gives a synopsis of the initial work done, and explains the necessity and urgency of the work.

ORIGIN OF STORAGE SCHEME.

For several years prior to the commencement of the Georgian Bay Ship Canal Survey in 1904, by the Department of Public Works, it was felt that something should be done to improve the conditions of Low Water on the Ottawa River, which made navigation difficult during the fall of low years, and crippled badly some of the power developments on the river.

Representations were made to the Federal Government that the only possible remedy was to establish some system of storage reservoirs at the head waters of the Ottawa River, by which some of the surplus waters in the spring could be collected and conserved, to be released gradually during the low period, and thus augment the low flow.

In 1904, Mr. George Brophy, Superintending Engineer, Ottawa River Works, was commissioned by the Department of Public Works to carry on a preliminary investigation of the storage possibilities, the work having been recognised as of Federal importance. The result of his investigations is published in the report of the Georgian Bay Ship Canal, page 303.

During the extensive surveys made for the proposed Georgian Bay Ship Canal, and in elaborating a project for a first-class waterway, it was soon seen that no satisfactory scheme could be devised unless it included an efficient partial control by storage of the spring floods of the Ottawa River throughout its watershed, in order to reduce the fluctuations in the different reaches, to eliminate swift and dangerous currents, and to establish practically slack water navigation.

In the report on that waterway, it was shown that conditions in the upper Ottawa River were favorable to a partial control of the surplus waters which could be used to increase the low water flow in time of deficiency, and that this control

would not only be of benefit to navigation, but would be of great advantage to all commercial and industrial interests on the river depending on water for power and transportation.

Moreover the fact that large communities depend on an adequate and permanent river flow for the necessities of life, such as water supply for domestic purposes and fire protection, and the economical production of electrical energy for lighting, tramways, industries, etc., gives to this control a national and vital importance. For these public utilities a shortage of water becomes a serious matter, as was exemplified in 1905 by the helpless condition of the powers at the Chaudière Falls on the Ottawa River on account of the long period of extremely low flow.

This should be a matter of great concern to the Government as well as to all other interested parties, and the conservation of surplus water to improve conditions during periods of deficiency becomes a question of the greatest public interest.

In the report on the Georgian Bay Ship Canal project, published in 1908, considerable preliminary data was given in regard to the possibility of establishing a satisfactory system of reservoirs on the Ottawa river, and such results and deductions as were then possible to make, were incorporated in the report.

On pages 242 and 243, the writer made the following statement:

> "In initiating the preliminary surveys for the storage it was not expected that a complete solution could be found in a short time, but that sufficient preliminary data could be collected to show that partial control at least was possible at a reasonable cost. Its complete determination would take several seasons, and extensive surveys would be required to select suitable sites for all dams and determine accurately the capacity of all reservoirs. This I am not ready to recommend, unless the construction of the Canal is decided. In that event, an hydraulic bureau should be at once formed to carry on systematic surveys and establish gradually the storage system during the construction of the Canal.
>
> "But even should construction be delayed, I would strongly recommend that preliminary studies, and the collecting of hydraulic data be continued, and it is my intention to keep a few men at that work unless otherwise instructed."

Again at page XXI of the report, in the summary giving the results and conclusions of the survey, your Engineering Board advised as follows:—

> 1st. That it is of great importance to continue every year the flow measurements of the Ottawa, Mattawa and French Rivers, at low, ordinary and high water stages, in order to have continuous records of the same, which will prove invaluable in the further development of the Canal problem, in case of construction, and a better knowledge of the water power possibilities.
>
> 2nd. That though it has been ascertained that the Ottawa river flood waters can be restrained partially, the preliminary investigations made, disclose the fact that data is lacking upon which to base a definite and judicious storage scheme. Twenty thousand square miles of the upper drainage area is but little known, and a reconnaissance of each lake is necessary before the true storage value of the area can be stated.
>
> Each of the larger tributaries—the Rouge, the Lièvre, the Gatineau, the Coulonge, the Black, the Du Moine, the Montreal, the Petawawa and the Madawaska—requires to have its storage lakes definitely decided upon, and the inflow, outflow and surface height recorded continuously for a period of several years.
>
> Continuous records of this kind are the only data upon which the restraint of floods and the reserve of water for navigation and power purposes can be

determined with accuracy. Their value depends entirely upon the length of time over which the records extend; it is, therefore, recommended that the collection of this information be continued without interruption.

3rd. That this study be extended gradually to all the large river drainage valleys which are possible of development for navigation and power purposes.

REPORT FOR FISCAL YEAR 1909-10.

(Reprint.)

During the session of 1908-9, parliament voted the sum of $65,000 to commence the construction of storage dams on the Ottawa valley, previously recommended by Mr. G. P. Brophy, superintendent of Ottawa River works. Another sum of $20,000 was voted to continue the preliminary studies already commenced of the Ottawa River watershed.

Having been promoted to the position of Assistant Deputy Minister in the department, Mr. C. R. Coutlée, C.E., was appointed Engineer in charge of the whole storage work, under the direction of the Chief Engineer, it being understood, however, that the work would be continued under my general supervision in an advisory capacity.

The result of the first year under this arrangement is embodied in Mr. Coutlée's very able and interesting report transmitted (see report 1909-10).

The duties connected with the very extensive and growing work of the department, however, have left me very little time to devote to this question, and the department has been particularly fortunate in securing the services of such able and energetic engineering officers as Mr. C. R. Coutlée and those immediately under him.

The report presented, after a brief review of the preliminary works performed in relation to storage during the survey for the Canal, treats of the present water-power development on the Ottawa River, the different lakes along its course, the characteristics of its watershed, its flow, etc., and gives figures as to the possible amount of water which can be stored in the natural reservoirs which it has been possible, so far, to investigate and study with a fair degree of accuracy.

It shows that storage so far in sight, and for which controlling dams are either under construction or sites fully surveyed and contract plans under way, are:—

Basin	Area.	Maximum Possible Depth.	Storage.
Lake Timiskaming	100 sq. miles	20 feet	2,000 sq. miles feet
Lake Kipawa	100 "	20 "	2,000 "
Lake Quinze and Expanse	100 "	20 "	2,000 "
Total			6,000 "

This represents a maximum possible reserve for each of these lakes of practically 56 billions cubic feet, or a total of 168 billions cubic feet of water, which instead of rushing to waste, would be pent up in these reservoirs and gradually let out during the low period.

Taking the low period at 150 days between October and March, it will then be possible to augment ultimately the low water flow at Ottawa for that period by 10,000 to 12,000 cubic feet per second. It can be seen, therefore, what immense

benefits will be derived from these reservoirs. Their beneficial effect is admirably resumed in Mr. Coutlée's report, as follows:—

1st. They will improve the potability of the water.

2nd. They will increase the depth for navigation.

3rd. They will increase and steady the flow for power production.

These reservoirs, though large, would not, however, be sufficient to exert the full control that is required of the flood waters during the extreme years of flood flow, and further reserves may be had by other dams at the outlet of Lakes Turnback, Opasatika, Grand Lake Victoria, Birch, Barrière, Kakabonga and several other lakes on the main stream or on the tributaries, which are now under study, or will be investigated as soon as time and staff are available.

Following a detailed description of the three large reservoirs mentioned above, the results of a great number of flow measurements are given, with an interesting description of the methods followed in metering.

Mention is also made of certain investigations commenced on some of the tributaries of the Ottawa which are to be continued and will be reported upon later.

CONSTRUCTION WORK 1909-10.

In relation to the reserve dams, the one at the foot of Lake Timiskaming and that on Kipawa River are under contract.

The progress of the work on the Timiskaming Dam has not been as rapid as was desired and expected on account of heavy work in foundation. The Kipawa River Dam is progressing satisfactorily. Both dams are of concrete with stop-log sluiceways, having an aggregate clear discharge sectional area at least as large as the original section of the river.

Contract plans are ready for the Gordon Creek Dam, another outlet of the Kipawa lake, and plans are being prepared for the Quinze. Full details regarding the construction of the dams under contract will be found in Mr. Coutlée's report.

At headquarters, a map of the Ottawa River watershed on a large scale has been commenced, in order that information, as it is gradually collected, may be recorded on it and made easily available. This map, when completed, with the corrected elevations and location of the different lakes and streams throughout the watershed will be a great help in studying the various problems involved in devising a judicious scheme of storage.

During the year, negotiations have been commenced with the Quebec and Ontario governments in relation to the control of the water-powers, should any be developed in connection with some of the reserve dams. It is hoped that a satisfactory understanding will be reached shortly.

It may be interesting to compare here the results already obtained on the Mississippi river, by storage reservoirs at headwaters, with the probable results to be obtained by the Ottawa River storage.

The project adopted in 1880 for the Mississippi River, by the United States Government, called for the construction of forty-one reservoirs, the primary object in view being for the benefit of navigation in the upper part of the river.

Five timber reserve dams were built, which were subsequently reconstructed in concrete, the estimated storage capacity of the reservoirs created being from 70,000,000,000 to 90,000,000,000 cubic feet of water. This was secured at a total cost of about $1,200,000 for original construction, renewals in concrete and acquisition of land, surveys, etc.

Though the project is far from being completed, it is reported by the U. S. Army Engineers that the expenditure as a whole, so far, has resulted in benefit during the low water season, in the upper part of the river and, incidentally, in the mitigation of the floods above St. Paul, the chief benefit being probably to

commerce on the river below St. Paul. It is said: "The effect on freight rates has been considerable, both on the upper river and below St. Paul. Without the reservoirs, steamboat navigation would scarcely be possible during low water between Brainard and Grand Rapids."

As seen in the first part of this report, the three first reservoirs of the Ottawa river reserve system—the Timiskaming, the Kipawa and the Quinze—which are under construction, will have a maximum storage capacity of 168,000,000,000 cubic feet of water or about double the capacity of the reservoirs already in operation at the head waters of the Mississippi. Assuming that for a certain number of years it will not be possible to operate these reservoirs at their full capacity on account of timber to be cut around the reservoirs for the high reserve stage contemplated, time required to settle some of the land damages, possible deficiency of inflow during low springs, etc., it is confidently expected that the winter flow can be so regulated as to make room for over 100,000,000,000 cubic feet of water at the end of the winter in the three reservoirs mentioned. The great benefits to be derived from this conservation of surplus water in the way of mitigation of floods, regulation of flow for power purposes, raising of the low level plane in the navigable stretches of the river, etc., can be secured at an estimated total expenditure of, say:—

*Timiskaming Dam—under construction	$200,000
Kipawa River Dam—completed	38,000
Gordon Creek Dam (Kipawa)—contract plan ready	40,000
Quinze Dam	300,000
Damages, surveys, etc.	150,000
Total	$728,000

These dams will all be concrete permanent structures with the stop-log type of sluiceways, well adapted to conditions on the Ottawa river. They will not therefore require renewals as would be the case with timber dams, and necessitate only ordinary care and maintenance.

The policy of building other reserve dams of concrete will be followed, excepting in such cases where it will be impossible to transport cement to the dam sites at a reasonable cost.

The figures quoted show that great benefits will be derived for a relatively low expenditure by the construction of the first three reservoirs of the reserve project under study, and that this expenditure will be well justified.

During the coming year, as the construction of these dams progresses, the question of rules and regulations to govern the operation of the reservoirs will be taken up and given the most careful consideration, as many interests will be involved.

Their ultimate object is to benefit navigation, but in their operation due regard has to be given to other legitimate interests.

Industries depending on water-powers will demand that at no time shall the discharge be reduced below the normal low-water flow of the streams affected. The floating of logs, which is at present the main feature of the rivers affected by the reservoirs, will have to be controlled and the logs passed through the sluiceways without too much waste of water, and in a manner which will not affect the commercial interests involved. The winter flow will have to be regulated so that the reservoirs will be practically empty at the end of the winter, and the full capacity of the basins will therefore be available when the spring freshets commence, thus avoiding all danger of higher flood level than formerly reached, which would be the case should a heavy spring flow find the reservoirs half full or at a comparatively high stage.

*These figures are revised in report for fiscal year ending March 31st, 1911.

During the low period, water will have to be released so as to keep the level of the river in the different navigable stretches from going below certain fixed elevations, as may be determined in the interests of navigation.

It is probable that no rigid rules can be promulgated which will apply in all cases, but general regulations will have to be observed, much being left to the judgment of the officer in control to meet the requirements and operate for the greatest benefit to the public. It is intended to connect the different reserve dams with the head office of the controlling officer by a system of telephone lines.

Before concluding, it may be pointed out that it is possible that the great national port of the Dominion, Montreal Harbour, will benefit directly also from the storage system projected. Very low water in Montreal Harbour and the St. Lawrence appears to be coincident with the low water in the Ottawa, and any increase in the low water flow of the Ottawa should have some effect on the St. Lawrence and Montreal Harbour. No curve of discharge of the St. Lawrence exists from which the effect of this increase can be accurately calculated. This feature is worthy of more extensive study and would require gaugings of the flow of the St. Lawrence at different localities. It may be that at some future date, this may be included in the investigations yet to be made in connection with the storage project, if sufficient funds are available.

With a view to facilitate the work of those wishing to look up all the information so far available, relating to the Ottawa River storage, I give below the pages of the Georgian Bay Ship Canal report where information may be had in addition to that presented in this report:—

Pages 82 to 90.
" 149 to 151.
" 159 to 166.
" 246 to 310.
" 476 to 490.

FISCAL YEAR ENDING MARCH 31st, 1911.

The report of the Engineer in Charge, Mr. C. R. Coutlée, covering the operations for the fiscal year 1910-11, is published *in extenso* in this volume, and only a brief reference to it will be made in this review of the Storage work.

During the Session of 1909-10, Parliament voted the following appropriations to continue the work of storage on the Ottawa River commenced the year previous.

Construction of water storage dams and regulation works on the Upper Ottawa River, and tributaries..	$175,000.00
Storage of flood waters Ottawa River watershed; to continue investigation and collection of data..	20,000.00
Storage and regulation of Upper Ottawa River, establishment of telephone connection with Kipawa dam.. ..	2,100.00

CONSTRUCTION WORK.

The report now presented shows that construction work has been carried on during the past fiscal year on the following:

Timiskaming Dam.
Kipawa River Dam.
Quinze Dam.

TIMISKAMING DAM CONSTRUCTION.

At the commencement of this fiscal year $41,760 had been expended on the construction of the dam. During the present year the work performed comprised the completion of the Ontario section of the dam and the dredging of the approach

channel to the sluiceways. There are sixteen 20 foot sluiceways in this section of the dam. The concrete work was finished in September, 1911.

The work on the Quebec portion of the dam was limited to building the cofferdam and some excavation.

The total expenditure on contract work amounted to $81,227, including materials on hand for the year 1910-11.

This dam has been designed so as to allow a minimum discharge of 20,000 cubic feet per second. The lake surface is at elevation 573.95.

Area of reservoir when full	100 sq. miles
Elevation when empty, low water level	574
Elevation, flood level	590
Proposed regulation level when full	590 to be obtained gradually as claims for flooded areas are settled.
Depth of water stored, revised	16 feet
Estimated quantity of water conserved	1,600 sq. miles, 1 ft. deep or 44½ billion cubic feet of water.
Revised cost of construction of dam, exclusive of land damages, probably over	$300,000

Contractors, Kirby & Stewart, Ottawa.

KIPAWA RIVER DAM CONSTRUCTION.

The Kippawa reservoir has two outlets, the chief discharge being through Kipawa River, the second outlet through Gordon Creek.

One dam is located at the mouth of the Kipawa River, 26 miles north of Kipawa station.

The other dam is proposed to be built across the entrance to Gordon Creek at Kipawa C. P. R. station.

The Kipawa dam was completed on the 8th of June.

Total expenditure incurred during the year	$42,770
Total cost, including stops by lifting apparatus, etc., will probably be	$75,000
Area of reservoir when full	120 sq. miles
Elevation when empty, low water level	870
Elevation, flood level	890
Proposed regulation level when full	890
Depth of water stored	20 feet
Estimated quantity of water conserved	2,400 sq. miles, 1 ft. deep or 67 billion cubic feet of water.
Revised cost of construction of dam	$75,000

Contractors, Morrow & Beatty.

QUINZE DAM CONSTRUCTION.

During the last fiscal year only preliminaries to construction were proceeded with.

2,500 barrels of cement were purchased as well as plant and machinery. The whole of the above was delivered and stored at the site of the dam by February, 1911, as the material required can only be transferred to the site over winter roads.

The total expenditure incurred amounted to $28,297.00.

Area of reservoir when full	150 sq. miles
Elevation, when empty, low water level	850
Elevation, flood level	870
Proposed regulation level when full	870
Depth of water stored	20 feet
Estimated quantity of water conserved	3,000 sq. miles, 1 ft. deep or about 84 billion c. feet.
Revised cost of construction of dam	$350,000

FLOW METERINGS AND SURVEYS.

The work done in connection with investigation of further dam sites and towards a better understanding of the natural conditions in the valley is set forth in the following reports on:—

(1) Metering, by S. B. Johnson, Asst. Engineer, Public Works, who recites the work done on each tributary in connection with the high and low flow. The result of meterings commenced on the St. Lawrence River is also given.

Many more meterings would be desirable and will be made eventually.

(2) Exploration of Quinze basin by G. B. Hull, Asst. Engineer, Public Works, who describes a trip made in the Spring of 1910 from Quinze Lake northward to Opasatika and Turnback Lakes.

(3) Exploration of Gatineau River and Kababonga basin by L. Dansereau, Asst. Engineer, Public Works, describing a stadia survey with levels made from Ottawa to Gens de Terre River, season of 1910.

The expenditure in connection with these surveys and also the construction staffs amounted for this first fiscal year to $59,659, as detailed in the statement contained in this report.

The result of these investigations shows clearly that a great deal can be accomplished towards storing and regulating the flood waters of the Ottawa River in addition to that accomplished by the three reservoirs now being established.

One of the most important works to be undertaken in the near future is the regulation of the Gatineau River. At present, the Gatineau, Lièvre and Rouge rivers, draining 15,000 square miles, discharge their flood waters into the Ottawa River in May, when the main river is at flood stage.

By regulating the flood waters of these rivers, as proposed, navigation and water power development between Ottawa and Montreal will be greatly benefitted during the late summer and fall.

Kakabonga Lake, at the head of the Gatineau River, can provide a reservoir of 100 square miles, capable of storing a layer 20 feet deep.

Two valuable water areas, the Petewawa and Madawaska, totalling 5,000 square miles with many lakes, remain to be investigated.

A large quantity of office work, in the way of construction plans, maps, computations, etc., has been done at headquarters during the fiscal year.

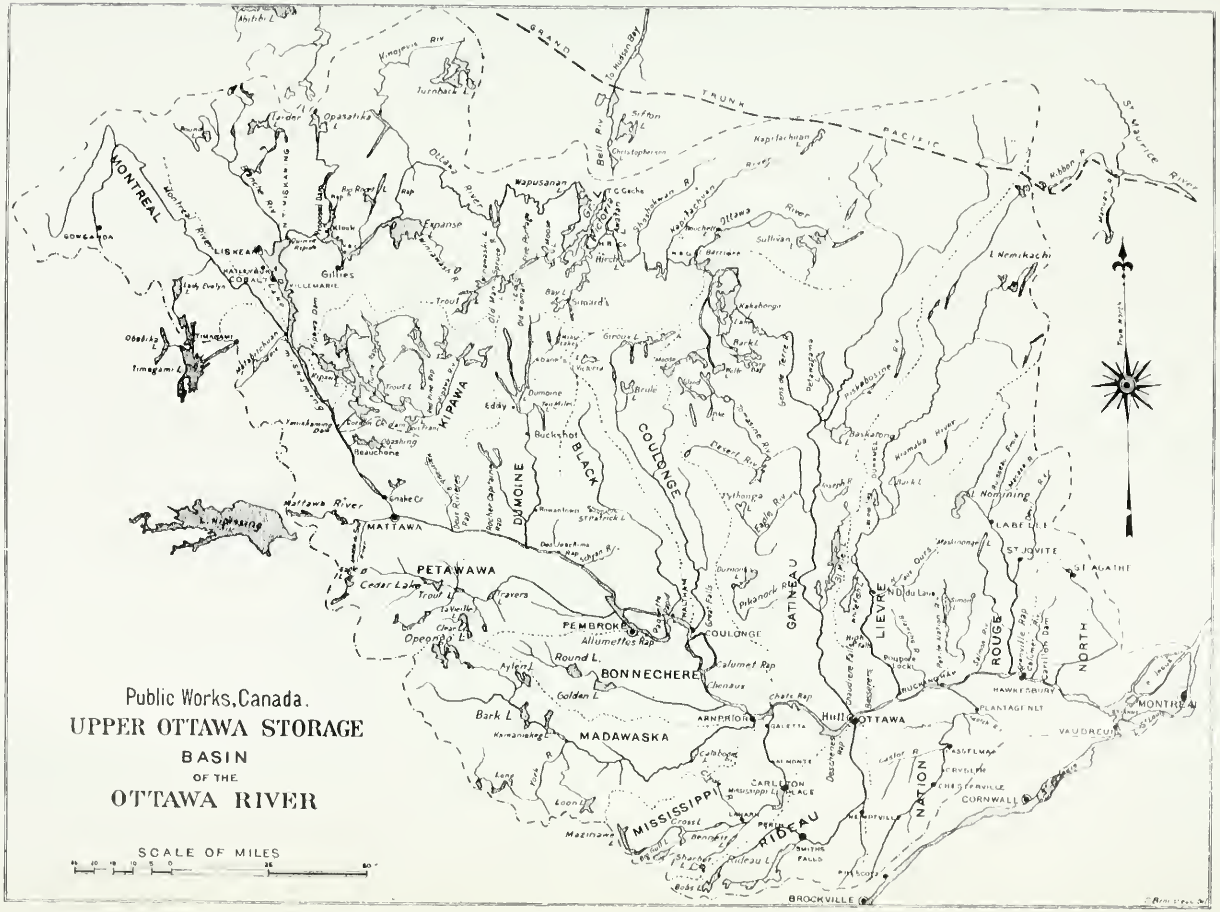
I have the honour to be,

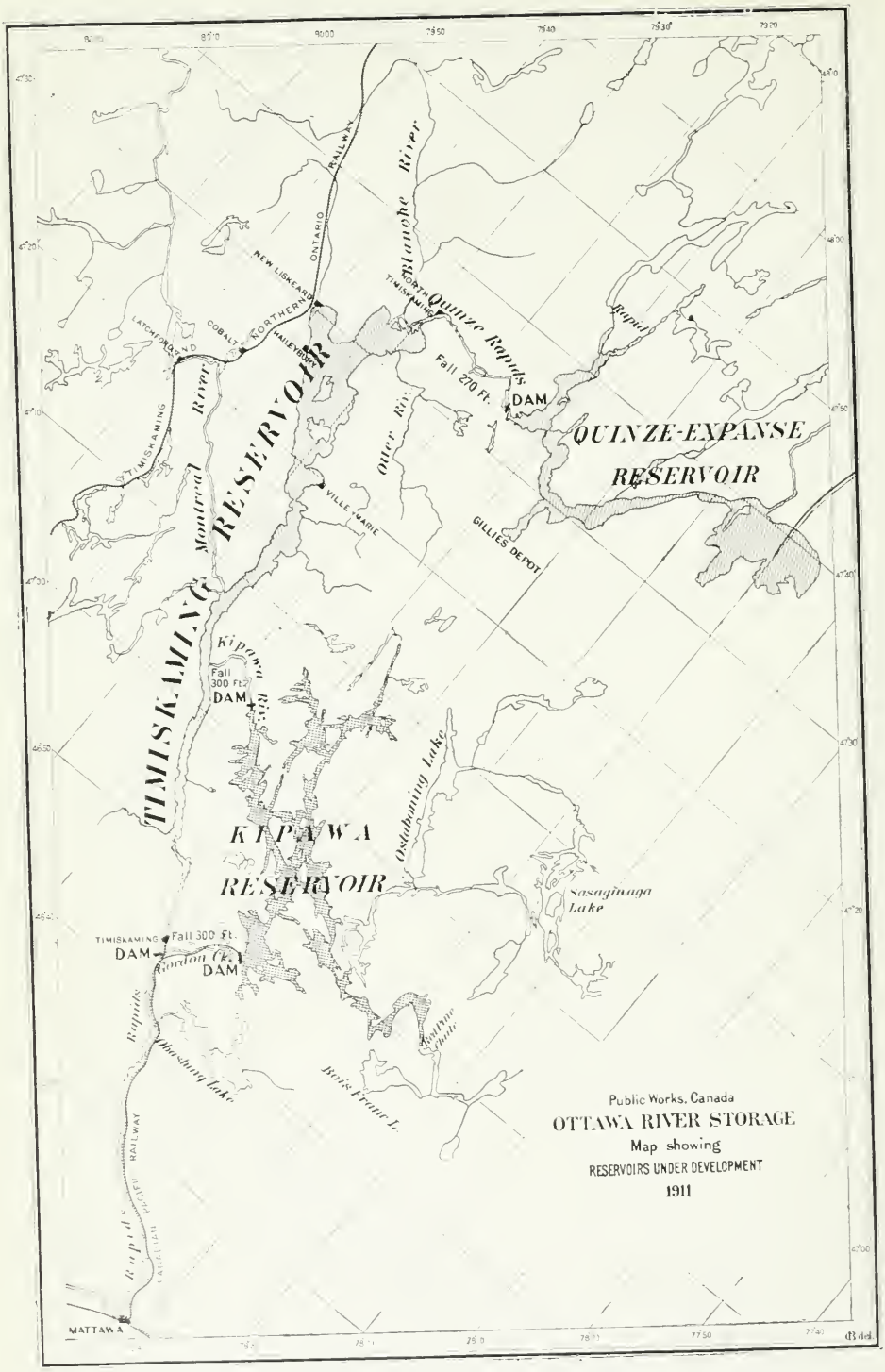
Sir,

Your obedient servant,

A. S. LAURENT.

Assistant Deputy Minister.


Public Works, Canada.
UPPER OTTAWA STORAGE
BASIN
OF THE
OTTAWA RIVER
SCALE OF MILES
MONTREAL
KIPAWA
DUMOINE
BLACK
COULONGE
GATINEAU
LIEVRE
ROUGE
NORTH
PETAWAWA
BONNECHERE
MADAWASKA
MISSISSIPPI
RIDEAU
NATION
GRAND
TRUNK
PACIFIC
MATTAWA
PEMBROKE
OTTAWA
Hull
ARNPRIOR
BROCKVILLE
CORNWALL
VAUDREUIL
HAWKESBURY
LISKEARD
COBALT
L. Nipissing
Mattawa River
Cedar Lake
Ottawa River
St Maurice River
To Hudson Bay



Public Works, Canada
OTTAWA RIVER STORAGE
Map showing
RESERVOIRS UNDER DEVELOPMENT
1911
TIMISKAMING RESERVOIR
QUINZE-EXPANSE RESERVOIR
KIPAWA RESERVOIR
Quinze Rapids
Fall 270 Ft.
DAM
Kipawa Riv.
Fall 300 Ft.
DAM
Fall 300 Ft.
DAM
DAM
Blanche River
Otter Riv.
Montreal River
Ostaboning Lake
Sasaginaga Lake
Bois Franc L.
Obashing Lake
Rapids
Rapids
Rapid
NEW LISKEARD
COBALT
HAILEYBURY
LATCHFORD
TIMISKAMING
NORTHERN
ONTARIO RAILWAY
NORTH TIMISKAMING
VILLE MARIE
GILLIES DEPOT
MATTAWA
CANADIAN PACIFIC RAILWAY

OTTAWA RIVER STORAGE

ANNUAL REPORT, APRIL, 1910, TO MARCH, 1911.

Timiskaming Dam Construction.

At the commencement of the fiscal year, $41,760 had been expended on this construction and a year's time. As stated in the last annual report, no adequate plant or force was employed on the contract at the commencement, so the summer of 1909 was lost. It was January, 1910, before a steam excavator began work, and February before concrete laying commenced.

The cold of this northern section created difficulties in excavating and concreting that had only been overcome when Timiskaming lake, responding to a very early spring, flooded the foundations.

When driven from the base platform, however, the force was turned upon the island abutment, which was brought up to full height in May, 1910.

During June, new coffer dams were built across the Ontario channel and the section between pumped out by the 25th. The steam shovel resumed excavation and operated during July and August, but stopped for good during the first week of September with work still to finish. In May, two meetings with the contractors were held to discuss programs for hastening the work.

A couple more conferences were had in June, the hardness of the excavation and the unforeseen difficulties of unwatering being discussed. With an active manager, a good scheme and better rate of progress were achieved during July and August, 1910; but this, the third, manager leaving at the end of July, the work became disorganized in a month. The time for completing the contract was extended from 22nd July to end of December, 1910.

Concrete.—When the foundation pit was pumped dry, 25th June, 1910, the concrete was found in good condition, although laid during the winter and flooded before the sun could hasten its set.

By the first week of July, forms were erected to half height for seven piers and concreting was resumed on the platform and aprons. A good speed was attained, and during August the most work was done, although the firm changed their manager on the first of the month.

In September, the concrete work of the Ontario sluiceways was finished and no more has since been done.

The piers and abutments are very fine samples of mass concrete work, the finish is good and the alignment particularly accurate.

The history of the concrete building in the Ontario sluiceways, during an unusually cold winter, is interesting.

Work began 12th February, 1910, and continued till April. Gravel of fair quality, but sandy, was the only available material and the mixing was done by machine. Large boulders were used as displacers in the concrete, each being thoroughly steamed to clean off ice before laying. The gravel and sand were stored in a bin that was heated by steam pipes and the water was also warmed. After laying, a movable steam radiator was set in place, and the mass covered with tarpaulins, so that all night the temperature was kept above freezing. The trench, into which the mixture, averaging 70° Fahrenheit, was placed, had, unfortunately,

hard frozen sides and there must have been a loss of heat to the frozen ground. The following table of temperatures is interesting.

TEMPERATURES OF CONCRETE AT TIMISKAMING DAM.

1910		In Concrete at				Atmospheric			
						Day		Night	
Date	Time	A.	B.	C.	D.	Max.	Min.	Max.	Min.
February 18	.....	.....	.....	.....	.....	18°	- 5°	4°	-10°
" 19	A.M.	52°	.....	.....	.....	22°	- 7°	13°	0°
" 20	.....	.....	.....	.....	.....	37°	13°	32°	17°
" 21	A.M.	44°	92°	.....	.....	23°	10°	10°	-17°
" 22	A.M.	.....	74°	.....	.....	19°	-15°	7°	- 6°
" 22	P.M.	33°	65°	55°	.....	.....	.....	.....	.....
" 23	A.M.	33°	53°	48°	.....	12°	- 4°	1°	-19°
" 23	P.M.	.....	50°	40°	74°	.....	.....	.....	.....
" 24	A.M.	.....	.....	42°	64°	12°	-14°	9°	-19°
" 24	P.M.	33°	42°	40°	61°	.....	.....	.....	.....
" 25	P.M.	33°	38°	37°	47°	24°	-14°	18°	8°
" 26	P.M.	34°	33°	.....	41°	31°	16°	36°	30°
" 27	P.M.	33°	32°	.....	36°	48°	36°	33°	24°
" 28	P.M.	34°	32°	33°	36°	39°	28°	32°	8°
March 1	P.M.	33°	31°	.....	.....	42°	14°	36°	24°
" 2	A.M.	33°	30°	31°	.....	40°	28°	32°	19°
" 3	A.M.	33°	30°	31°	33°	36°	22°	24°	7°
" 4	A.M.	30°	30°	31°	32°	48°	16°	.....	.....

NOTE:—Thermometers "A" and "C" were set at half depth in platform 3 feet thick, and "B" and "D" were 5 feet down in the cut off wall below the platform.

All thermometers were Fahrenheit and hung in vertical iron pipes, plugged at top and bottom. The top of concrete was kept covered. Fall in temperature is probably due to there being from 2′ to 2½′ of frost in the ground.

After being flooded with water at 32° F. for 70 days till 25th June, when the water was 55° F., the concrete was still soft enough to penetrate easily with a steel bar or pick. In 30 days, however, the mass was hard enough to resist repeated blows of a pick and only a few inches of the surface required to be removed.

The following gives an idea of the weather during one cold period in February, 1910:—

RECORD OF TEMPERATURE.

1910	Day		Night	
	Maximum	Minimum	Maximum	Minimum
February 5	0°	-16°	-10°	-23°
" 6	-13°	-16°	-10°	-26°
" 7	19°	-10°	12°	26°
" 8	32°	26°	28°	- 3°
" 9	5°	- 3°	2°	-18°
" 10	- 3°	-18°	- 8°	-30°
" 11	17°	-24°	6°	2°
" 12	18°	4°	12°	-14°
" 13	21°	-10°	20°	13°
" 14	31°	17°	18°	-18°
" 15	1°	-14°	2°	- 7°
" 16	9°	0°	2°	-22°

The chemical and physical action of setting is illustrated by the following temperature records of concrete built by the Department of Public Works at St. Andrews dam, north of Winnipeg in 1907.

A pipe with closed bottom and a screw top was placed low in the concrete, a thermometer being suspended inside from the screw top. As the wall or structure came up, additional lengths of pipe were added. For the sake of comparison the results in the accompanying table are given for three different parts of the work showing considerable range of condition of laying. In this table (A) is the pivot pier of lock, a heavy mass of concrete 35 ft. high and built in summer, during August, 1907; (B) is submerged dam, Span No. 1, winter work, January, 1908, working 11 hours a day, and (C) is submerged dam, Span No. 4, winter work, January, 1909, working night and day.

TABLE SHOWING VARYING TEMPERATURES OF SETTING CONCRETE.

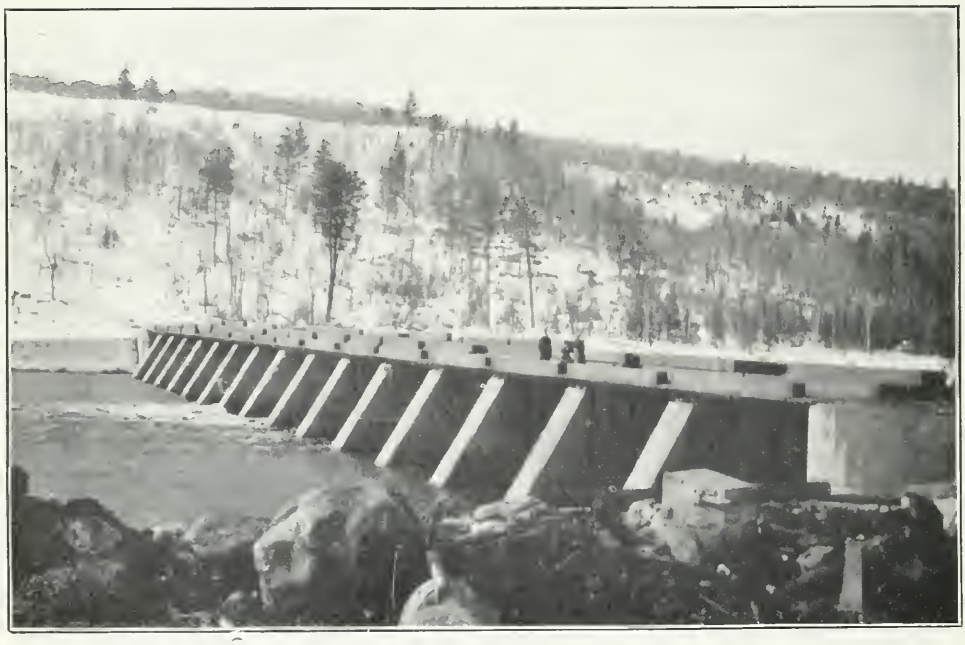
(Fahrenheit Degrees above Zero.)

(A) Pivot Pier, built Aug. 1907.			(B) Span 1 of Dam, winterwork, 11-hour day.			(C) Span 4 of Dam, winterwork, working night and day.		
Date 1907	Temperatures		Date 1908	Temperatures		Date 1909	Temperatures	
	In pipes	In Air		In pipes	In Air		In pipes	In Air
Aug. 28	Pipe set	65	Jan. 18	Pipe set	50	Jan. 20	Pipe set	53
Aug. 29	82.5	64	" 19	65	50	" 21	72	53
	84	69	" 20	75	50	" 22	80	.....
	86.5	64	" 21	77	.....	" 22	83	.....
Aug. 30	82.5	68	" 24	76	.....	" 23	86	.....
	86	76	" 27	78	.....	" 23	87	.....
	91.5	66	Feb. 5	78	.....	" 24	88	.....
Aug. 31	96	74	" 8	78	.....	" 24	110	.....
	98	77	" 9	76	.....	" 25	111	.....
Sept. 2	99	60	" 10	76	.....	" 26	110	.....
" 3	104	64	" 12	75	.....	" 26	110	.....
" 9	103	.....	" 18	70	.....	" 27	108	.....
" 11	103	.....	" 22	65	.....	" 30	80	.....
" 12	105	.....	" 26	65	.....	Feb. 2	80	.....
" 19	110	.....	" 29	63	.....	" 3	80	.....
Oct. 11	102	.....	Mar. 2	62	.....			
Nov. 5	82	.....	" 4	61	.....			
1908								
Aug. 16	49	65	" 6	60	.....			
" 29	51	.....	" 9	57	.....			
Sept. 25	52	43	" 13	54	.....			
			" 17	50	.....			
			" 24	45	.....			
			" 31	42	.....			
			April 3	42	.....			
			" 6	40	.....			
			" 8	39	.....			
			" 9	38	.....			
			Reading stopped by flood. Aug. 16 Pipes 62; Air 65; Water 67.					

No doubt, the Timiskaming concrete rose in temperature at some stage in setting.

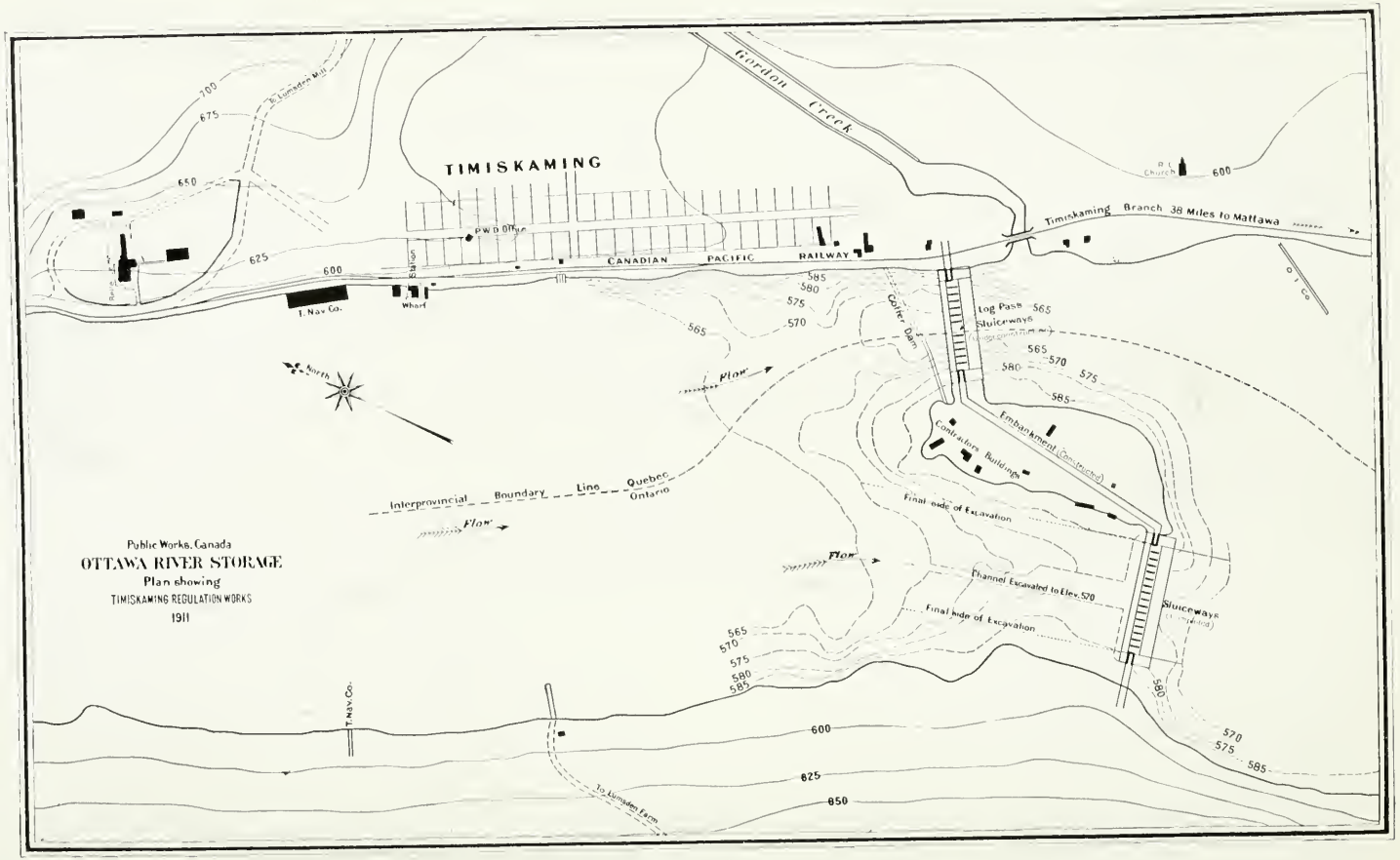
For winter work, a new practice is to use very quick setting cement that hardens before it is cooled below chemical action temperatures. Work of this kind was done on the power plant near St. Timothee, Que., during this same cold winter of 1910.

No. 1.—Timiskaming Dam. Ontario sluiceways, showing logs jammed against the piers, June, 1910, and swift flowing approach channel.



No. 2.—Timiskaming Dam. Ontario sluiceways from below, showing water on lower apron and stop logs piled on roadway.

No. 3.—Looking down the Long Sault Rapids from Lumsden's farm, Ontario.


TIMISKAMING
Gordon Creek
Timiskaming Branch 38 Miles to Mattawa
CANADIAN PACIFIC RAILWAY
P.W.D. Office
Station
Wharf
T. Nav. Co.
To Lumsden Mill
North
Flow
Interprovincial Boundary Line Quebec
Ontario
Log Pass
Sluiceways
Coffer Dam
Embankment (Constructed)
Contractors Buildings
Final side of Excavation
Channel Excavated to Elev. 570
Sluiceways
To Lumsden Farm
Public Works, Canada
OTTAWA RIVER STORAGE
Plan showing
TIMISKAMING REGULATION WORKS
1911

By mistake, a car of the quick setting cement, made at the International Works, Hull, Que., came to Timiskaming. Its hardening was so rapid that its surface could scarcely be smoothed over. The first batches being especially troublesome, because nothing of the kind was expected. The result was apparently as good concrete as any laid, however.

Design of Sluiceways.

Plans and views of these sluiceways are shown, page 11. The sill platform is at elevation 570 or 19 feet below standard level of reservoir. It would have been preferable to have had the sill 5 feet lower, but the excavation necessary to cut down the approach channel would have doubled the cost.

Between the island and Ontario shore, the width was about 400 feet, so the design was made for 16 sluiceways each 20 feet wide with a pier 5 feet wide between. The piers have recesses to hold a movable curtain wall formed of horizontal timbers, 18 inches square, that can be hoisted out one by one. This is a removable dam and during spring floods all the timbers will be lifted out, leaving a larger exit than under natural conditions, because the Ontario channel has been deepened. To draw off the lower layer of storage during March, however, requires deeper sluice openings, and so advantage of the depth in the deep Quebec Channel was taken to place those sills at elevation 565, or 5 feet lower.

Minimum Discharge at Timiskaming Sluices.

The minimum through Timiskaming should be about 20,000 c.f.s. and lake surface must be 573.95 to discharge the total amount as shown by the following calculation made by H. H. Donnelly, Assistant Engineer.

Taking 572.1 as elevation of water below Timiskaming dam for a discharge of 20,000 c.f.s., then:—	
16 Ontario sluices, each discharging with 0.95 feet head and 2 feet submergence at the rate of 20.5 c.f.s. per foot of crest, total 16 x 20.5 x 20	6,560 c.f.s.
13 Quebec sluices, each discharging with 0.95 feet head and submergence at the rate of 52.5 c.f.s. per foot of crest; total 13 x 52.5 x 20	13,650 c.f.s.
	20,210 c.f.s.
If the Ontario sills were as low as the Quebec side, then, with Timiskaming lake surface elevation 573.05 and the surface below dam elevation 572.1, the discharge would be:—	
16 Ontario sluices, each discharging with 0.95 feet head, and 7 feet submergence at rate of 35 c.f.s., total	11,200 c.f.s.
13 Quebec sluices, each discharging with 0.95 feet head, and 7 feet submergence at rate of 35 c.f.s., total	9,100 c.f.s.
	20,300 c.f.s.

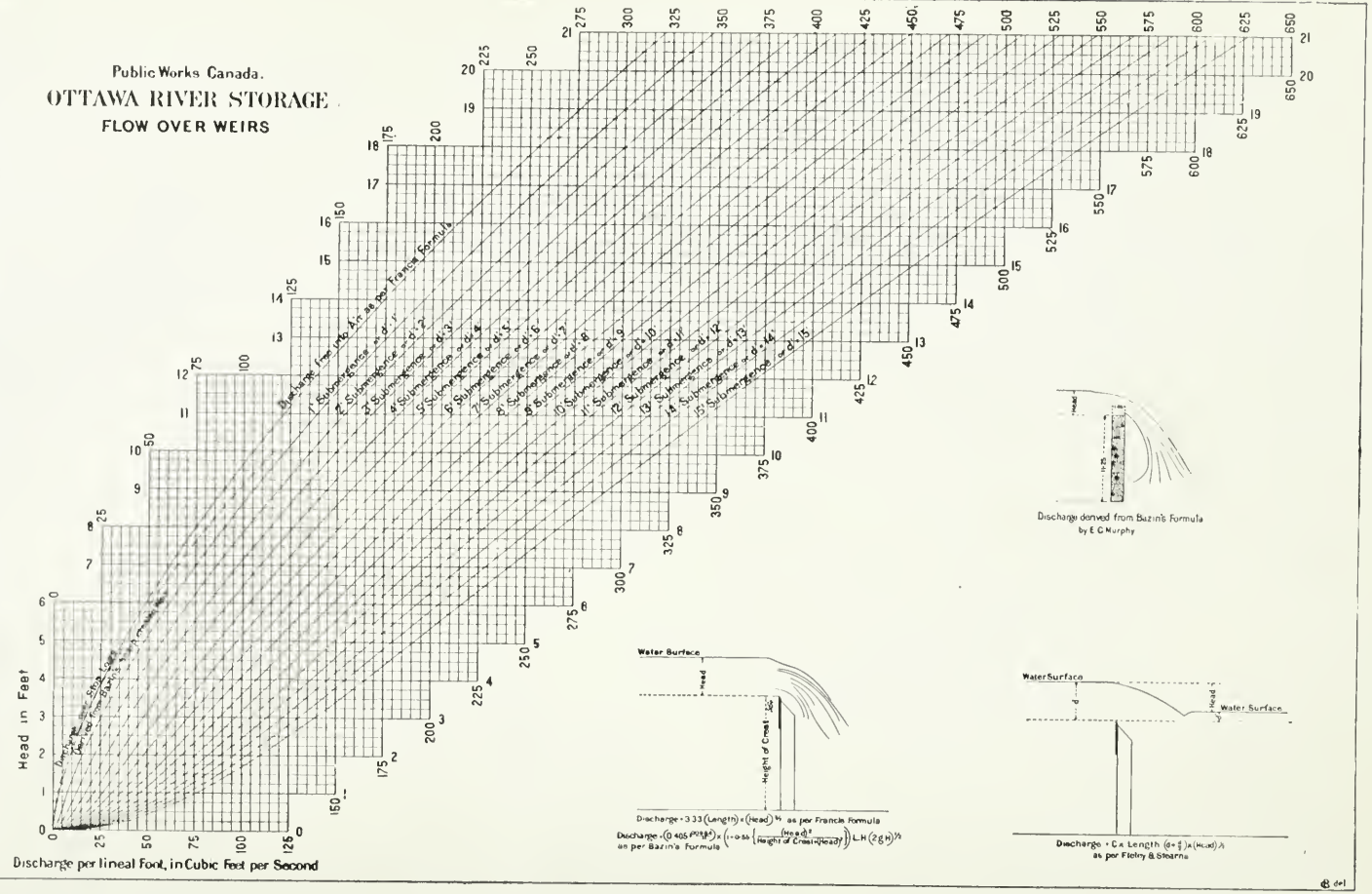
As designed, the lake surface can only be drawn down to elevation 573.95, instead of elevation 573.05, so a layer 0.9 feet thick is rendered unavailable.

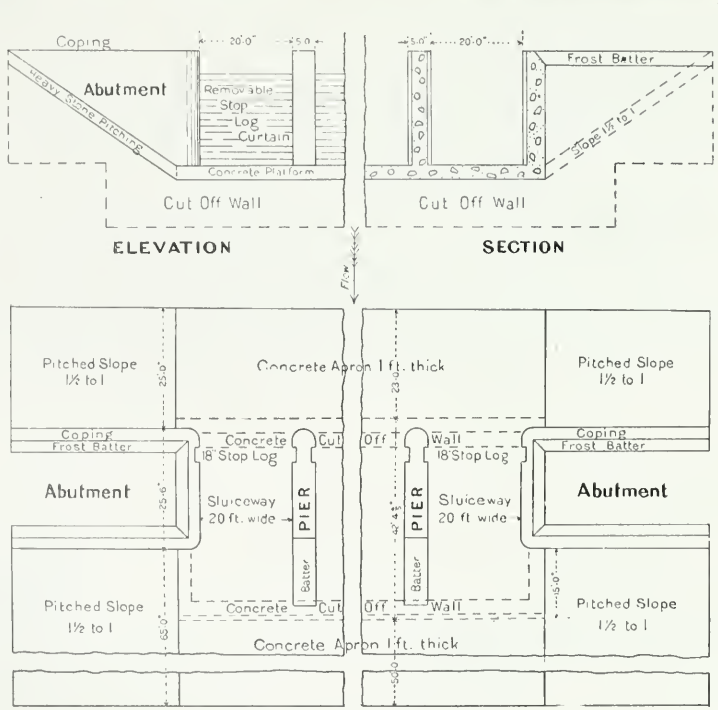
As before stated, however, lowering the Ontario channel would double the cost which is not warranted at present.

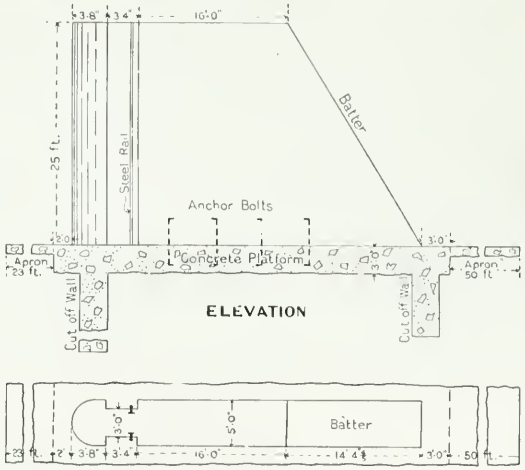
Public Works Canada.

OTTAWA RIVER STORAGE

FLOW OVER WEIRS







Public Works, Canada.

OTTAWA RIVER STORAGE

GENERAL DRAWING

CONCRETE SLUICEWAYS

FOUNDATIONS.

The foundation of the sluices is shown, page 11. It consists of a concrete platform, 3 feet thick, strong enough to support a pier, if undermined during a flood, till repairs could be made. To prevent under scour, a cut-off is made 10 feet deep across the upper face and another 5 feet deep across the lower side. In addition, a concrete apron, 25 feet wide, protects the bottom from scouring under the driving water at entry, and a 50 foot wide apron below prevents wearing away of material by the rapidly leaving flow.

The Ontario bed is boulder strewn with hard material beneath, but the work done in the Quebec channel, before the cofferdam failed (May, 1911), indicates a sand, hard, but easily saturated. Through this material, the seepage was all that four large pumps could conveniently manage. The foundation for the Quebec side will consequently be modified and include sheet piling beneath the cut-off wall. In fact, it proved impracticable to excavate the cut-off trench 10 feet deep in the sand, although the boring pipes were broken in piercing the undisturbed bed.

The depth to which a cut-off should extend in sand is debatable, but accepted practice is to go as far below the bed as the water surface is above.

Head water will soak the foundation, but cannot move the sand so long as it is boxed in or held by friction. If head water penetrates beneath the dam, then it buoys up the sand below and the tail water carries it away so rapidly that a cellar is formed.

COFFERDAM, QUEBEC CHANNEL.

After the middle of September, 1910, practically all the work was in connection with the cofferdam across the Quebec channel.

The type decided upon by the contractors was stone filled cribwork sunk to place and sheeted along the up stream face with plank. Round timber was procured from the Hawkesbury and Edwards limits near the work, and by the 17th October, the dam was half way across (210 feet). It was intended to unwater only half the channel and about 30 feet of cribwork was built down stream, but heavy rains caused an unusual rise of 5 feet and work had to cease. This brought most of the work on the dam to a stand-still, but sand was hauled and stone crushed which still remain stored upon the ground. The cable way was moved to the Quebec channel and put in working order by the middle of November, thus obviating the use of scows to cross material to the island. With a view to laying concrete during cold weather, arrangements were made to build a shed, 400 long and 60 wide, enclosing all the piers. Lumber was delivered for this, but owing to delays with unwatering, the shed could not be erected.

To ensure immediate excavation of the foundation, orders were given to bring the steam shovel across the island. This machine had been left in the water since the Ontario cofferdam was cut in November.

Excavation continued in the island abutment, but leakage from the river through the fine sand stopped work several times, although a sheet pile bulk head was built, and a steam pump installed. Slips constantly occurred from the sides of the pit till finally, on 20th November, the river side burst in, when the excavation was to grade and only the cut-off trenches remained to be dug.

Lake Timiskaming continued extraordinarily high for the season, although the Kipawa river flow was shut off by the Department's dam at that place. On 18th November, the Ontario cofferdam was blown out and the lake surface began to fall

No. 4.—Timiskaming dam November, 1910. Coffer dams, Quebec channel, stopped by autumn flood.

No. 5.—Timiskaming coffer dam with foundation laid dry. The boulders have to be blasted before the sand bottom beneath them can be excavated or piles driven.

No. 6.—Timiskaming cofferdam, Quebec channel, 3rd May—day before failure—lake surface elevation 580.59. The pit was flooded from below by Gordon Creek water several days before.

2 inches per day. This had not been opened before, because the contractors were tendering for the excavation in the channel. The current soon scoured out between the south end of the dredge cut and the north end of the contractors' work passing a good flow through the sluiceways for the first time.

It was January, 1911, before the cofferdam was put under way again, when it was raised about 2 feet and track laid on top to carry stone filling and other material.

The lake had by then lowered 3 feet, so with a falling river, it was decided to cofferdam the whole channel and cribwork was begun from the Quebec shore. The advantage is that this method allows the foundation slab and cut-off walls to be built without joint. With a cofferdam half way across, the part parallel to the current requires to be a double crib with clay in the middle. Otherwise, the current will scour away staunching material from the exposed face, and in this case a boulder bottom prevents the driving of sheet piles.

An inexperienced force, cold windy weather, and the swift current made crib setting very slow and several cribs were lost by upsetting or breaking away of tackle.

By the first week of February, the new cribwork was connected to that built in October, and by the middle of the month the upstream face was sheeted with two thicknesses of boards. Large boulders upon the river bed made it difficult to closely fit the cofferdam to the bottom and cribs sometimes came to rest with one corner tilted over. No trench was dug in the river bottom into which to bury the ends of the face plank, because a diver could not work in the strong current. Instead, a bank was deposited along the front of the cofferdam, but the only earth available was fine sand that made a slurry in water.

The counterdam, across the lower end of the foundation area, to defend the pit from the lower pool, was finished by the end of February. There were only two small steam pumps, a six-inch and four-inch, on the contract and these could not lower the water below the lower pool, down to which it had run off naturally. Two large steam pumps, a twelve-inch and a fourteen-inch with boilers, were then rented and a pocket dam built just below the main dam. This was to intercept and collect the leakage which was led in box flumes over the work and emptied below the counterdam. The pocket dam was first a small earth bank, the sandy soil alone available, however, dissolved beneath the water, but froze hard in the air, bridging and obscuring leaky places. A sloping dam of planks, pointed and driven like sheet piling, was made but still the leakage kept the pumps fully engaged and water constantly burst beneath. Two more large pumps were added during March and every effort made to staunch leaks. It was not till the end of the month that four large pumps, working day and night, could keep the pit unwatered.

Meanwhile the spring rise was approaching, and to meet it the main cofferdam was raised 7 feet with continuous cribwork, which was filled with stone, adding weight to that already built. The cofferdam was of light section, but was well strutted on the down stream side. It was a question, whether stoplogs should be provided in this upper portion, but to arrange for them was difficult, and they could only pass 4,000 c.f.s., 5% of the flood. It seemed better instead, to blast out the Ontario side and increase by loosening and scour the space through which to get discharge, while the cofferdam blocked the Quebec channel.

The enlargement of the Ontario side by blasting and scouring was quite successful and aided the discharge greatly.

Excavation in the Quebec foundation was possible during the last week of March and continued till the end of April. The lower pool then rose over the counterdam and operations had to cease, the plant being nearly all removed. On 4th May, the main dam failed by scouring under the Quebec end. The water was then overtopping it more than a foot.

TIMISKAMING—VALUE OF CONTRACT WORK IN 1909–10.

Item	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Total
Steel Beams						$ 106	$ 494	$ 600
Anchor Bolts						146	294	420
Common Excavation	$ 780	$ 630	$ 300	$ 690	$2,190	870	1,650	7,110
Rock Excavation	1,800	1,050	750	750	300	750	900	6,300
Boulder Excavation	675	150	300	150	300	225	450	2,250
Concrete						3,995	12,155	16,150
MATERIAL ON HAND.								
I Beams, Channels							4,980	4,980
Steel Rails							500	500
Gravel							450	450
Cement							3,000	3,000
	$3,255	$1,830	$1,350	$1,590	$2,790	$6,092	$24,853	$41,760

TIMISKAMING—QUANTITY OF CONTRACT WORK IN 1909–10.

Item	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Total
Steel Beams						1,760	8,240	10,000 pounds
Anchor Bolts						2,440	4,560	7,000 "
Common Excavation	2,600	2,100	1,000	2,300	7,300	2,900	5,500	23,700 c. yds.
Rock "	1,200	700	500	500	200	500	600	4,200 "
Boulder "	900	200	400	200	400	300	600	3,000 "
Concrete						470	1,430	1,900 "
MATERIAL ON HAND.								
I Beams, Channels							83,000	83,000 pounds
Steel Rails							25,000	25,000 "
Gravel							600	600 c. yds.
Cement							2,000	2,000 bbls.

TIMISKAMING—VALUE OF CONTRACT WORK IN 1910-11.

Item	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Total
B. C. Fir 12″ x 12″						$ 768		$ 5,504	$ 7,456				$ 13,728
" 6″ x 12″													
White Pine 3″ x 12								918					918
Steel Beams				$ 708	$ 1,854	150		2,034					4,746
Anchor Bolts	$ 60			300	60								420
Common Excavation			$ 150	1,800	1,635		$ 165	111					3,861
Rock Excavation			225	975	75	1,575	375	375	360				3,960
Boulder Excavation			45	405	225	525	225	135	165				1,725
Stone Protection				150		750	600						1,500
Concrete	5,100	2,125		9,775	22,610	2,720	34						42,364
	$ 5,160	$ 2,125	$ 420	$14,113	$26,459	$ 6,488	$ 1,399	$ 9,077	$ 7,981				$ 73,222
MATERIAL ON HAND.													
I Beams Channels									$ 3,015				3,015
Cement									640				640
Sand									1,200				1,200
Broken Stone									3,150				3,150
													$ 81,227

TIMISKAMING—QUANTITY OF CONTRACT WORK IN 1910-11.

Item	Unit	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Total
B. C. Fir 12″ x 12″	C. ft.						1,200		8,600	11,650				21,450 c. ft.
White Pine 3″ x 12″	Ft. b.m.								21,600					21,600 ft. B.M.
Steel Beams	Lb				11,800	30,900	2,500		33,900					79,100 pounds
Anchor Bolts	"	1,000			5,000	1,000								7,000 pounds
Common Excavation	C. yd			500	6,000	5,450		550	370					12,870 c. yds.
Rock Excavation	C. yd.			150	650	50	1,050	250	250	240				2,640 "
Boulder Excavation	"			60	540	300	700	300	180	220				2,300 "
Stone Protection	C. yd.				200		1,000	800						2,000 "
Concrete	C. yd.	600	250		1,150	2,660	320	4						4,981 "
Material on hand														
I Beams, Channels	Lb									100,500				100,500 pounds
Cement	Barrel									640				640 barrels
Sand	Cu. yd									2,400				2,400 c. yds.
Broken stone	"									4,200				4,200 "

ONTARIO CHANNEL EXCAVATION.

The dredge Queen excavated in this channel during the autumn of 1909 and encountered much difficulty from boulders upon which the scows and tug frequently grounded. After work stopped for winter, a force of drillers was kept on to blast boulders over the ground to be dredged during 1910. Low water aided this, and half the approach channel had been well prepared for dredging and some excavation had been swung out with the derrick by the end of March, 1910.

It was 17th May, 1910, before the dredge started, and after making one cut the dipper arm broke 18th June, then teeth were removed, so before repairs were finished it was 5th July. The material was so hard that it had to be blasted at times and low water prevented through cuts being finished to the contractors' work. The autumn rise, however, aided matters and a cut was fortunately carried to the cofferdam before work stopped in the middle of November.

The blasting of surface boulders was continued all season by a small force with good results, and when the cofferdam was cut 18th November, a good opening quickly scoured to the already excavated sluiceway channel.

During March, 1911, a force was placed blasting the material along the edge of the Ontario channel. The loosening allowed the current to scour the material and a large amount was quickly removed, increasing the flow way against the rising lake which was troubling Haileybury and New Liskeard.

Mr. Donnelly, Assistant Engineer, looked after this work and all the dam construction after Mr. Matheson left in October, 1910. He has prepared the following notes on progress and cost:—

Dredging:—The Department dredge "Queen" resumed work in channel on May 15th, 1910, and was taken off for the winter November 15th. The total excavation during this time was 6,150 c. yds. scow measure. The dredge is too light for the work and has been in service for eight years, consequently, there were many breaks, and time taken for repairs was usually large. The total length of time on the work was 1,557 hours, viz:—

Actual working time	870 hours	55.9%
Lost time repairs, etc.	592 hours	38.0%
Lost time Saturdays cleaning up and fueling	95 hours	6.1%
	1,557 hours	

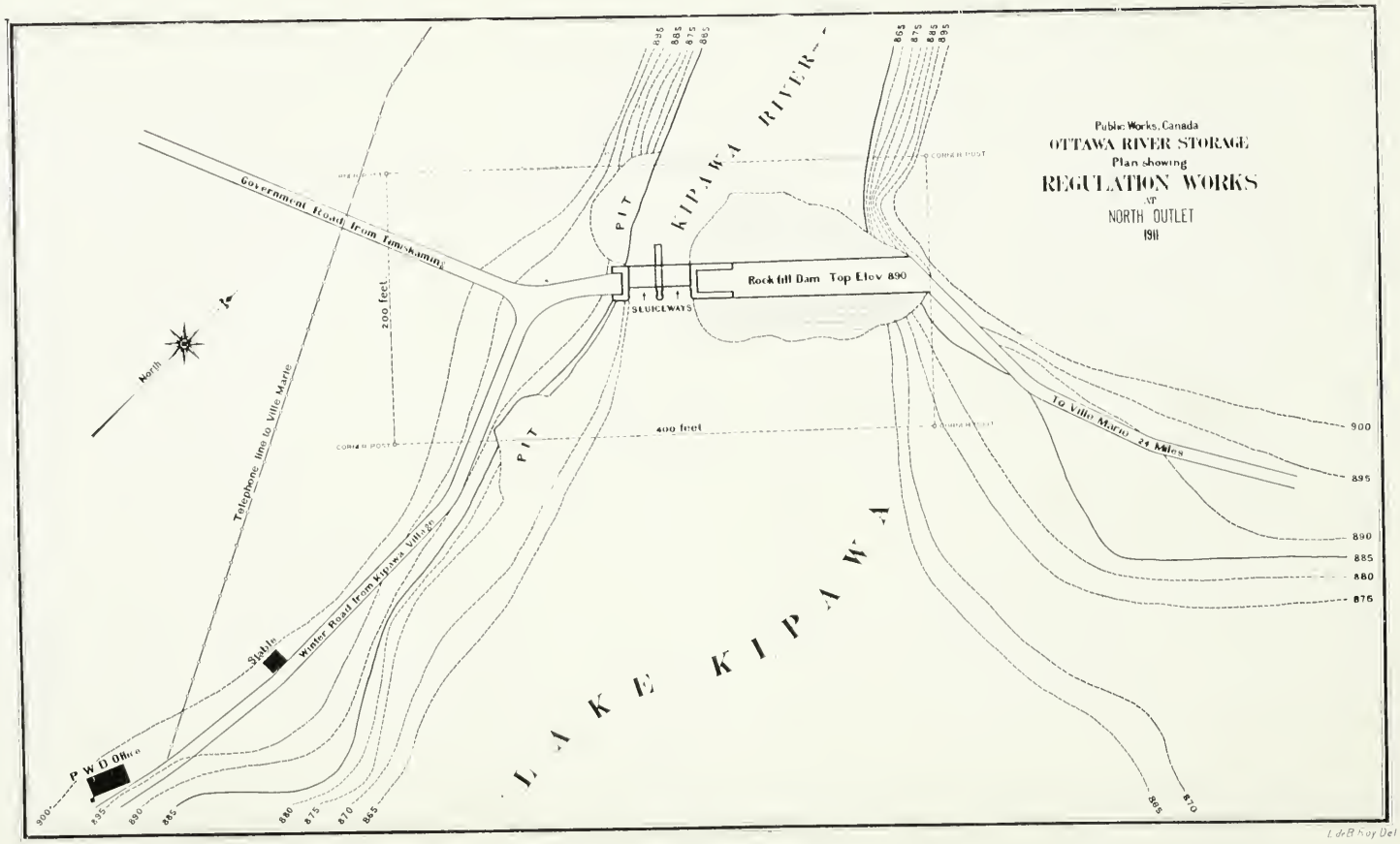
The area of channel dredged in season 1909 was 583 sq. yds. During season of 1910 the area was 1,734 sq. yds., making a total area of 2,317 sq. yds.

Profiting by high water in November, 1910, the dredge was able to excavate close to the Ontario cofferdam, and when it was opened the water cut through between the contractors' shovel cut and the dredged channel.

Drilling and blasting.—On March 1st, 1910, the area drilled and blasted was 7,700 sq. yds., since then 22,530 sq. yds., making a total to Nov. 30th of 30,230 sq. yds.

Two No. 42 Little Giant steam drills were used for drilling on shore. Submerged work was drilled by hand from floats.

To open a channel through to the shovel cut excavated by the contractors, some work was performed lifting boulders. The dredge was also obliged to work in shallow water, where scows could not be used, and the excavation was taken away with a hand derrick. The extra labour cannot rightly be charged to drilling The accompanying table shows the quantities and cost.


Public Works, Canada
OTTAWA RIVER STORAGE
Plan showing
REGULATION WORKS
AT
NORTH OUTLET
1911
KIPAWA RIVER
LAKE KIPAWA
PIT
PIT
Rock fill Dam Top Elev 890
SLUICEWAYS
Government Road from Temiskaming
Telephone line to Ville Marie
Winter Road from Kipawa Village
To Ville Marie 24 Miles
200 feet
400 feet
CORNER POST
North
Stable
P.W.D. Office
900
895
890
885
880
875
870
865

L de B Kay Del

SUMMARY OF COST OF DRILLING.

From Oct. 6th, 1909, to Nov. 30th, 1910.

Wages	$14,297		
Plant & Accounts	6,863		$21,160
Less			
Clearing boulders to open channel		$840	
Taking away excavation from dredge to open channel, not chargeable to drilling		372	1,212
Net amount expended on drilling			$19,948

Area of channel drilled and blasted was 22,280 sq. yds., costing per sq. yd. of surface 89½ cents.

Area dredged, season of 1910, 1,734 sq. yds. which at 89½ cents cost for drilling $1,551.55.

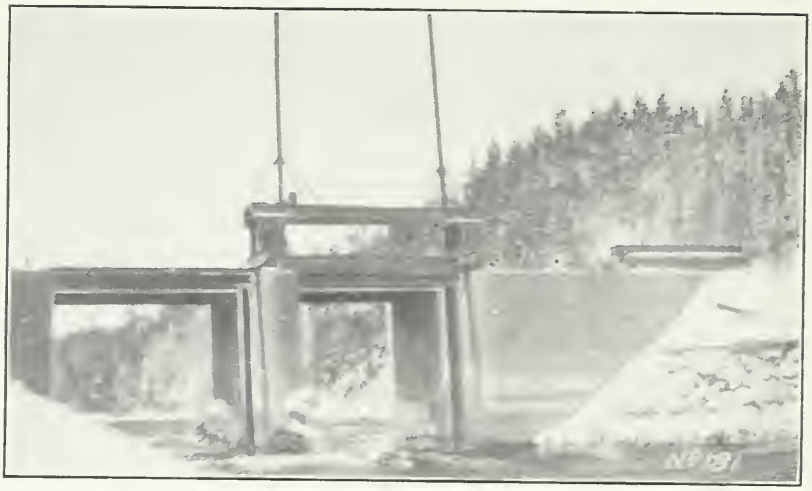
Dredged during season of 1910	6,156	c. yds.
Cost of drilling per c. yd.	$0.175	
Cost of dredging per c. yd. (dredge $5 per hour)	$1.268	
Cost of excavation	$1.443	per c. yd.
Cost of drilling operations including removing boulders from channel, etc.	$0.187	
Cost of dredging	1.268	per c. yd.
Cost of excavation	$1.455	

Kipawa River Dam Construction.

Owing to a deep fissure in the foundation rock, the Kipawa river sluiceways had to be moved laterally into the cliff side of the river and the outlet closed with a rock fill dam. This greatly increased the rock excavation, but by April concreting began and was so far completed by 5th May, that temporary arrangements were made to pass the Colonial Lumber Company's drive with 5,000 c. f. s. outflow down the river. The dam was finished and stop logs placed 8th June, remaining closed till 15th November.

One sluiceway was cut out when the relocation was made, so the stop logs, steel and cement left over were bought from the contractors and stored at Kipawa for use in the Gordon Creek dam.

The average precipitation in this district is 30 to 33 inches. Up to 1st October, this year, it had only reached 22 inches, of which August contributed 8 inches. During October, over 3 inches fell and the result was a marked rise on all the lakes. Kipawa was being held at elevation 880, and the heavy rains raised the surface to nearly 881, despite the opening of Gordon Creek sluiceway. This surface elevation is very close to some of the McLaughlin Company's storehouses, consequently two stop logs were removed from each sluiceway on 15th November, as a sufficient flow could not be passed down Gordon Creek without doing damage to the Improvement Company's works. During the month of January, 1911, the balance of the stop logs were removed to allow all the water possible to reach the city of Ottawa, owing to the low stage of the main river. This storage, seven feet in depth, served to augment the low flow in February and was drawn down to elevation 874 by the end of March, showing that the sluices control the lake, although the lower layer runs off slowly.



No. 7.—Kipawa River dam. Sluiceways regulating Kipawa Lake, showing stop-log lifting machine in position.

No 8.—Kipawa Lake. Natural canal extending from the north west bay almost across to Taggart's Bay.

No. 9.—Dam Site, Gordon Creek. Kipawa Village before the fire. Fall of 1910.

STOP LOG LIFTING MACHINE.

The curtain between piers consists of horizontal timbers 18 inches square and to open the sluiceways they are lifted out one at a time. With our sluices 20 feet deep the resistance to raising the stop logs, weighing 1½ tons, is great and a powerful machine is required.

A lifting machine, which was nearly completed at the shops of Messrs. Kennedy & Sons, Owen Sound, was purchased in January and delivered at Kipawa station by the middle of February. The weight was twenty-one tons and owing to slush on the lake ice, the transportation by teams 30 miles to the dam was expensive. It was preferred to send it forward in winter, however, so that the dam could be operated to pass the log drive in May. This proved a fortunate move because the station was swept by fire in April and the machine would have been destroyed.

During the winter, a force of men removed the cofferdam, at the head of Kipawa river, while the lake was low, as at high surface it was submerged. If this cofferdam had been blasted away during spring water the wreckage would have tended to jam in the sluiceways below.

Mr. Davy, Assistant Engineer at Kipawa, employed his party after the construction work was finished till autumn, making contour surveys of areas that the reservoir level will flood.

Notes of all lumber camps and storehouses affected by the proposed raised surface were also secured and further information was obtained for the proposed dam at Gordon Creek.

A report on the flooded areas and buildings with plans attached was completed on December 20th, 1910.

Navigation on Kipawa lake opened on April 13th, 1910, closed December 8th, 1910, and opened for season 1911 on May 9th.

Mr. Davy submits the following notes regarding the development of the district.

Lumbering on Kipawa lake was begun in the early 60's, square timber being made first, and afterwards saw logs.

The wooden dam at the head of Kipawa river was commenced in 1879 and completed in 1881. It is now replaced by the rock fill and sluices constructed last year by the Department of Public Works.

In 1881 a company was formed called the Gordon Creek Improvement Company, which improved the creek for log driving, excavated a new entry at the village of Kipawa and built a wooden dam.

The first steamboat on Kipawa lake was launched by Olivier Latour in 1880.

A saw mill was built about this time just below the first rapids on Gordon Creek, but has been completely destroyed.

There are four steamboats and two alligators for towing, freighting, and passenger traffic on Kipawa lake. An average of one million saw logs are cut tributary to Kipawa lake annually. Near the foot of Gordon Creek a saw mill was erected by the late Alex. Lumsden in 1887, and enlarged to an industrial village in 1895.

There is a model farm on the Ontario side in connection with this business.

The shores of Lake Timiskaming were first occupied by the North West Fur Company before its union with the Hudson Bay Company in 1820.

Trading posts were maintained at the narrows below the present town of Ville Marie and also at North Timiskaming. A mission was established in 1836, the priests travelling from Montreal to Bytown (Ottawa) by steamboat, the canals being just then completed. The journey covering nearly 300 miles above Bytown was made in bark canoes and occupied about three weeks. In 1887, the mission was removed to the town of Ville Marie which is surrounded by some of the best farms in the clay belt and distributes to a population of ten thousand.

No. 10.—Mattawa Junction of Ottawa and Mattawa Rivers.

To surmount the rapids between Mattawa and the foot of Lake Timiskaming a steamboat and narrow gage railway system was inaugurated in 1887, the stages being:—

Steamboat Mattawa wharf to foot of Demicharge and Cave rapids	4	miles.
Tramway 3 foot gage horse cars	1	"
Steamboat to foot of Les Erables rapids	4	"
Tramway to head of Mountain rapids	3	"
Steamboat up "Seven League" lake	16	"
Railway steam 3 foot gage to head Long Sault	10	"
Railway steam 3 foot gage branch to Kipawa	9	"
Steamboat from Sault up Lake Timiskaming	70	"

The Canadian Pacific Railway Company purchased the old charter and constructed a standard gage line from Mattawa through to Timiskaming (head of Sault rapids) and Kipawa (head of Gordon Creek) in 1893-95.

In 1904 the Ontario government completed a railway northwards from North Bay to Liskeard (110 miles), a farm district town at the head of Lake Timiskaming. Rich silver mines were then discovered at Cobalt and the flourishing town of Haileybury has rapidly grown upon the lake shore a few miles south of Liskeard.

KIPAWA RIVER—VALUE OF CONTRACT WORK IN 1909-10-11.

Item	1909		1910							
	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Final
Solid rock			$ 600	$ 3,250	$ 4,275	$ 3,350	$ 2,500	$ 3,025	$ 212	$ 17,212
Loose Rock								10	1	11
Common Excavation			45		75			30	9	159
Concrete						5,985	1,701	714	126	8,526
Removing old dam		$ 525	495		150				9	1,179
Gravel for Roadway								200		200
Stop logs								1,514		1,514
Plank								224		224
Steel						1,000	352	390	8	1,750
Unwatering	$ 2,000	$ 2,200	500	200	300					5,200
	$ 2,000	$ 2,725	$ 1,640	$ 3,450	4,800	10,335	4,553	6,107	365	35,975
Construction Accounts										2,295
Stop logs lifting machine delivered at Kipawa Station, Feb. 1911										2,700
Hauling and erection, labor and teams conveyance, 30 miles from Kipawa Station to dam										2,000
										$ 42,970

KIPAWA RIVER—QUANTITY OF CONTRACT WORK IN 1909-10-11.

Item	Unit	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Final
Solid Rock	cu. yd.			240	1,300	1,710	1,340	1,000	1,210	85	6,885 c. yds.
Loose Rock	"								10	1	11 c. yds.
Common Excavation	"			60		100			40	12	212 c. yds.
Concrete	"						570	162	68	12	812 c. yds.
Removing old dam	"		350	330		100				6	786 c. yds.
Gravel for roadway	"								200		200 c. yds.
Stop logs	Ft. B.M.								17,820		17,820 Ft.B.M.
Plank	"								3,200		3,200 "
Steel	lb.						12,500	4,400	4,875	102	21,877 pounds.

Supplies and Plant Forwarded to Quinze Dam.

After the location of Quinze dam had been decided upon and plans began, the fact presented itself that to build the sluiceways in 1911, it would be necessary to get cement in during the winter. The offers from contractors to do the work would also be so much less with the uncertainty removed regarding the transport of cement over the rough bush roads, which are almost impassable for heavy loads in summer. Cement could be delivered at North Timiskaming, seventeen miles from the dam site, by rail and boat, whence it could be hauled over winter roads. Arrangements were therefore made to buy six thousand barrels during the first week of November, 1910, and large tents were procured in which to store it temporarily. About 2,500 barrels were delivered at North Timiskaming, when ice took across the bay and the remainder had to be landed and stored at Guigues and at Ville Marie. During December, contracts for hauling by teams to the dam site, were let and the cement was all delivered in good order by February.

In March, difficulties cropped up regarding the land required for the dam and it became impossible to advertise the work. A concrete plant was therefore purchased and transported to the dam site while the winter roads still lasted. To avoid the carriage of heavy boilers and engines, an alligator steamboat was secured to use as a power house. A portable saw mill was also purchased to prepare lumber for concrete forms and workmen's quarters.

The intention is to build the sluiceways by day labor and to use gravel obtainable near by for the concrete. After the foundation of the sluiceways is built a temporary trestle as high as the top of dam will be constructed. The mixing will be done at ground level and the concrete raised by an elevating bucket and tower to top of trestle. It will then be carried by cars and deposited in the pier forms.

The plant for this purpose consists of:

A steam alligator boat to be used as a power house.
Wire cable for hoist, etc.
Concrete mixing machine.
Elevating bucket and tower for concrete.
Car wheels for four sets of cars to be built on ground.
Portable saw mill for form lumber, houses, etc.
1,500 feet of light track to gravel pit.

QUINZE DAM EXPENDITURE

1910		
November	Cement	$ 9,789
December	Freight to North Timiskaming	1,863
"	Freight to Guigues Wharf	1,490
"	Freight to Ville-Marie	1,018
"	Storage and Protection of Cement	1,114
1911		
January	Hauling from North Timiskaming to Quinze Dam	1,942
"	Hauling from Guigues Wharf to Quinze Dam	3,351
	Hauling from Ville Marie to Quinze dam	3,054
1910		
December	Constructing winter road to Quinze dam	707
1911		
March	Plant and Machinery purchased	3,969
		$ 28,297

Flow Meterings and Surveys.

The work done in connection with investigation of further dam sites and towards a better understanding of the natural phenomena in the valley is set forth in the following reports:—

(1) Metering, by S. B. Johnson, Asst. Engineer, Public Works, who recites the work done on each tributary in connection with the high and low flow. Many more meterings would be desirable and eventually will be made.

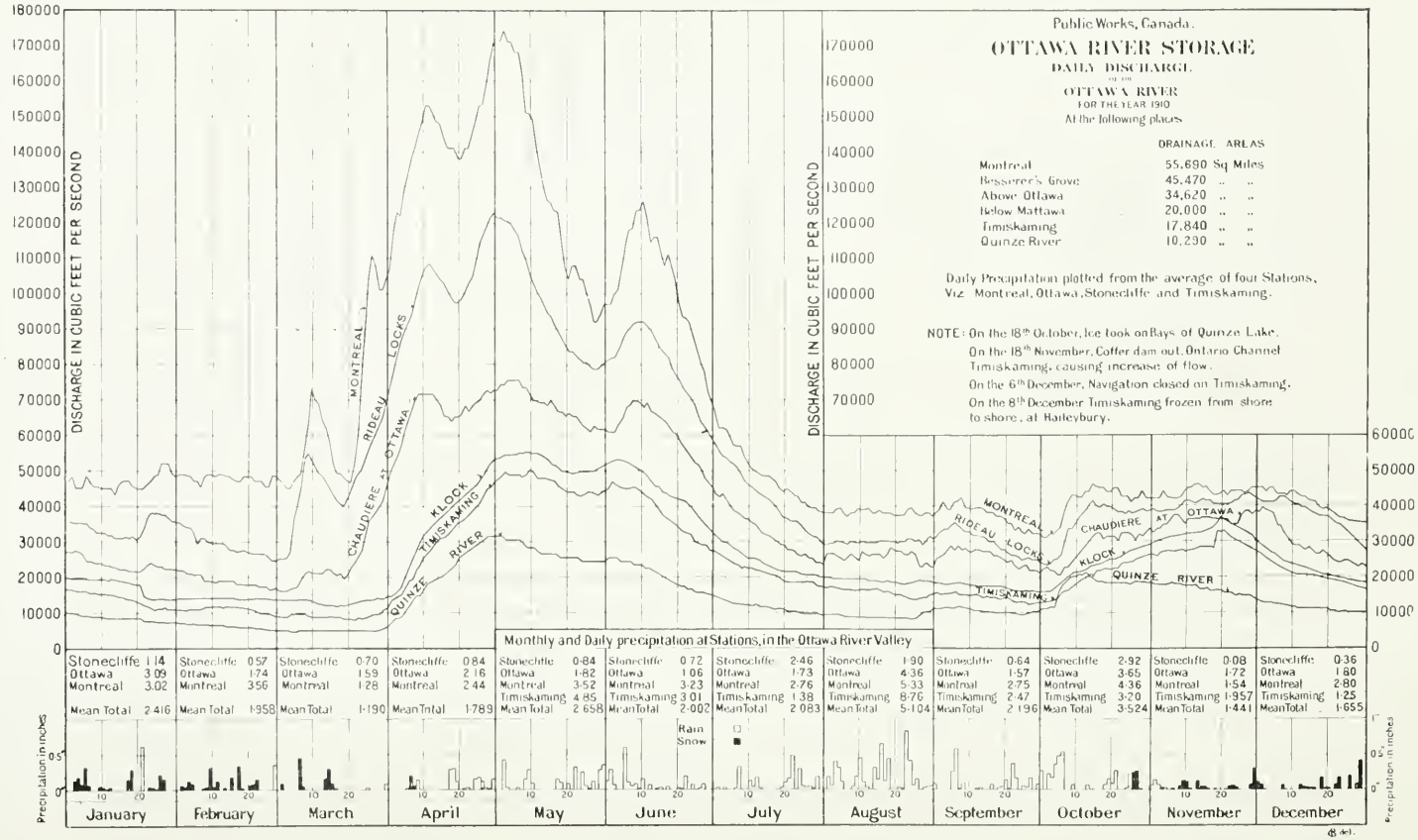
(2) Exploration of Quinze basin by G. B. Hull, Asst. Engineer, Public Works, who describes a trip made in the spring of 1910 from Quinze lake northward to Opasatika and Turnback lakes.

(3) Exploration of Gatineau river and Kakabonga basin by L. Dansereau, Asst. Engineer, Public Works, describing a stadia survey with levels made from Ottawa to Gens de Terre river, season of 1910.

The expenditure in connection with these surveys and also the construction staffs is detailed in the following table:—

Staff Pay Lists and Accounts

1910	Timiskaming	Kipawa	Quinze	Gatineau	Metering	Ottawa
April	$ 1,151	$ 565	$ 150	.....	$ 504	$ 907
May	1,236	960	758	$ 652	681	556
June	1,054	887	932	689	1,189	468
July	1,311	777	931	940	499	445
August	1,556	1,264	707	1,289	496	610
September	1,144	973	1,093	1,132	628	552
October	1,506	985	1,030	939	767	538
November	999	959	1,311	857	386	491
December	1,002	763	1,728	279	397	706
1911						
January	986	788	1,998	217	643	535
February	1,420	796	1,740	140	703	612
March	675	822	1,051	105	517	582
	$ 14,040	$ 10,539	$ 13,429	$ 7,239	$ 7,410	$ 7,002


Public Works, Canada.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
FOR THE YEAR 1910
At the following places
DRAINAGE AREAS
Montreal 55,690 Sq Miles
Besserer's Grove 45,470 .. ..
Above Ottawa 34,620 .. ..
Below Mattawa 20,000 .. ..
Timiskaming 17,840 .. ..
Quinze River 10,290 .. ..
Daily Precipitation plotted from the average of four Stations, Viz Montreal, Ottawa, Stonecliffe and Timiskaming.
NOTE: On the 18th October, Ice took on Bays of Quinze Lake.
On the 18th November, Coffer dam out, Ontario Channel Timiskaming, causing increase of flow.
On the 6th December, Navigation closed on Timiskaming.
On the 8th December Timiskaming frozen from shore to shore, at Haileybury.
DISCHARGE IN CUBIC FEET PER SECOND
MONTREAL
RIDEAU LOCKS
CHAUDIERE AT OTTAWA
KLOCK
TIMISKAMING
QUINZE RIVER
Monthly and Daily precipitation at Stations, in the Ottawa River Valley
Stonecliffe 1·14 Ottawa 3·09 Montreal 3·02 Mean Total 2·416
Stonecliffe 0·57 Ottawa 1·74 Montreal 3·56 Mean Total 1·958
Stonecliffe 0·70 Ottawa 1·59 Montreal 1·28 Mean Total 1·190
Stonecliffe 0·84 Ottawa 2·16 Montreal 2·44 Mean Total 1·789
Stonecliffe 0·84 Ottawa 1·82 Montreal 3·52 Timiskaming 4·85 Mean Total 2·658
Stonecliffe 0·72 Ottawa 1·06 Montreal 3·23 Timiskaming 3·01 Mean Total 2·002
Stonecliffe 2·46 Ottawa 1·73 Montreal 2·76 Timiskaming 1·38 Mean Total 2·083
Stonecliffe 1·90 Ottawa 4·36 Montreal 5·33 Timiskaming 8·76 Mean Total 5·104
Stonecliffe 0·64 Ottawa 1·57 Montreal 2·75 Timiskaming 2·47 Mean Total 2·196
Stonecliffe 2·92 Ottawa 3·65 Montreal 4·36 Timiskaming 3·20 Mean Total 3·524
Stonecliffe 0·08 Ottawa 1·72 Montreal 1·54 Timiskaming 1·957 Mean Total 1·441
Stonecliffe 0·36 Ottawa 1·80 Montreal 2·80 Timiskaming 1·25 Mean Total 1·655
Rain
Snow
Precipitation in inches
January
February
March
April
May
June
July
August
September
October
November
December

PUBLIC WORKS, CANADA

OTTAWA RIVER STORAGE

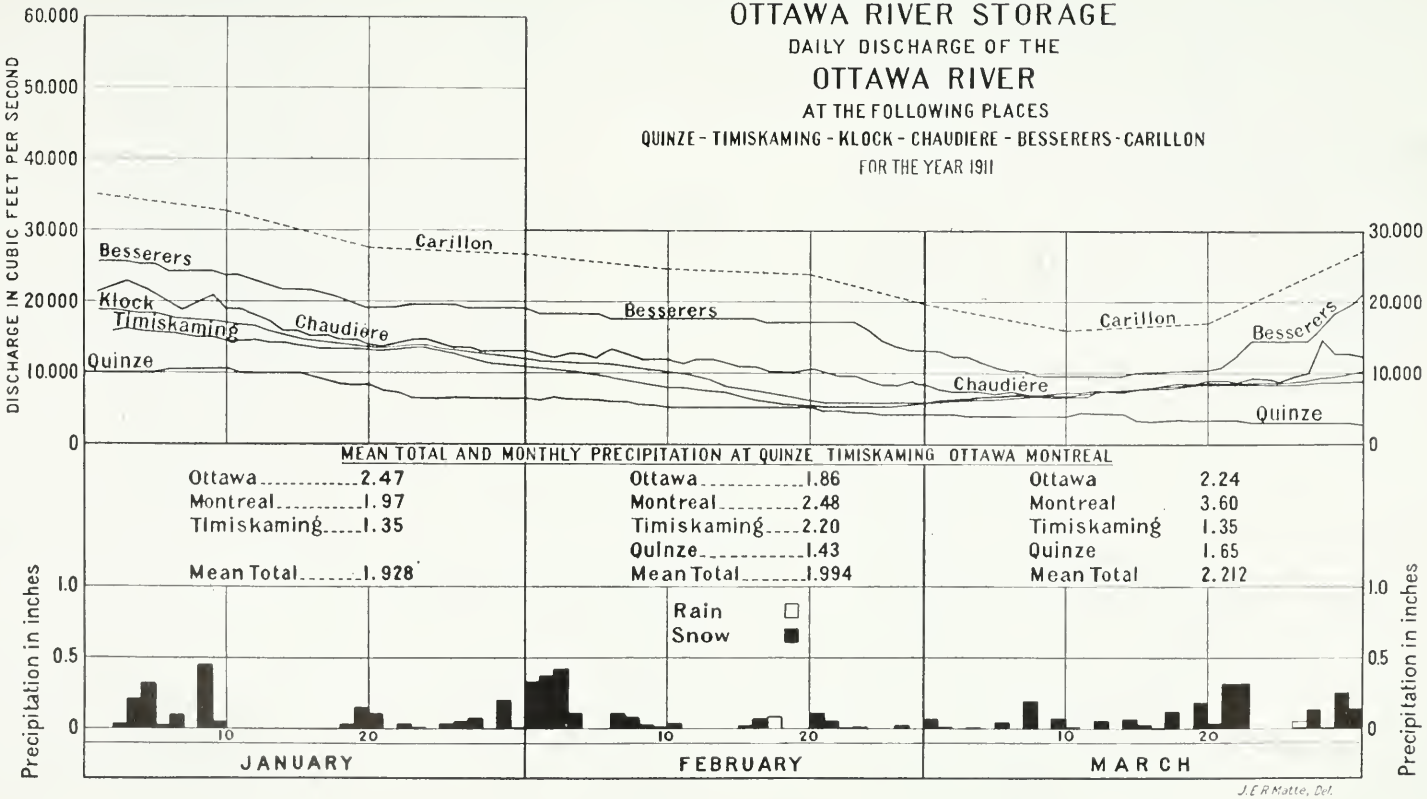
DAILY DISCHARGE OF THE

OTTAWA RIVER

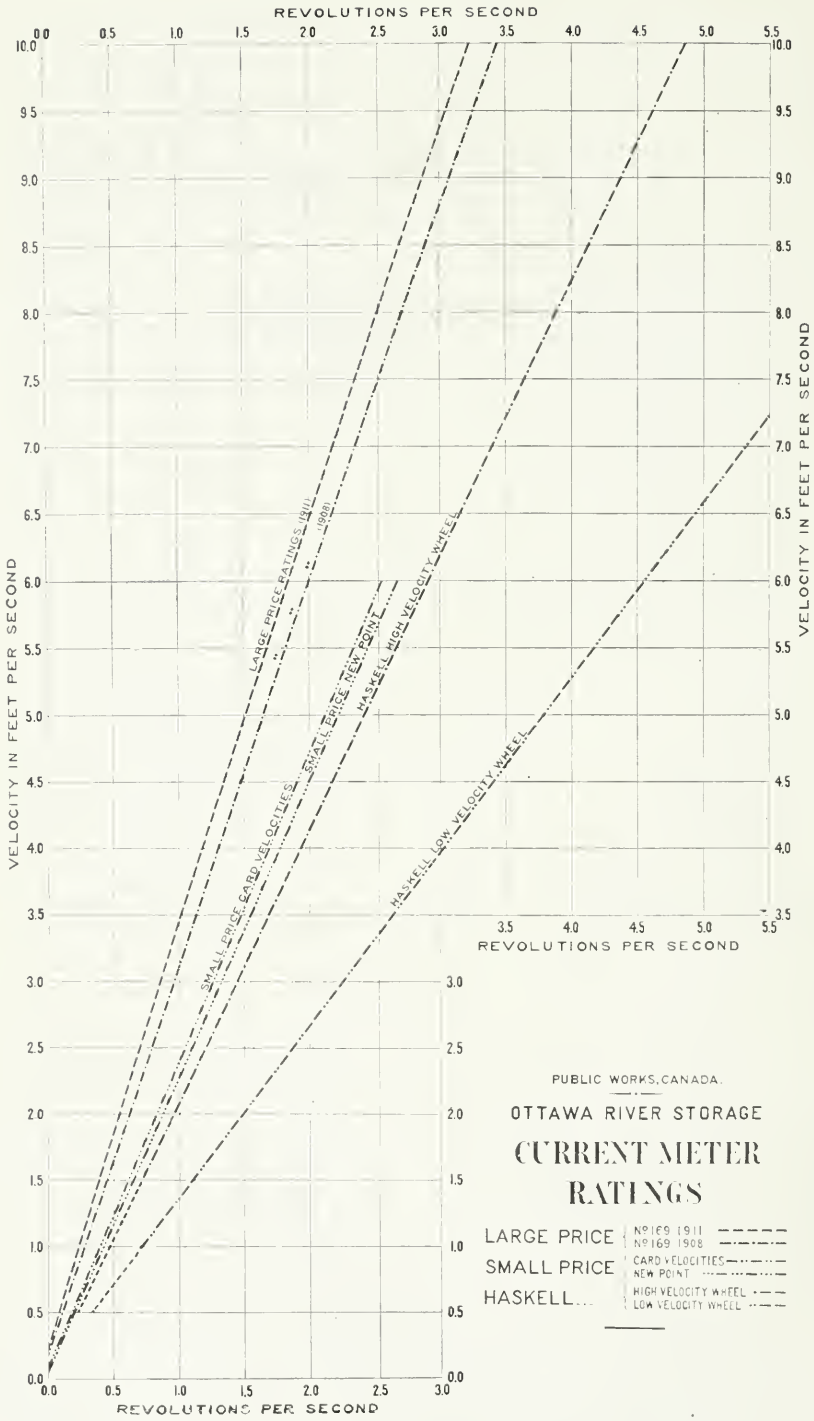
AT THE FOLLOWING PLACES

QUINZE - TIMISKAMING - KLOCK - CHAUDIERE - BESSERERS - CARILLON

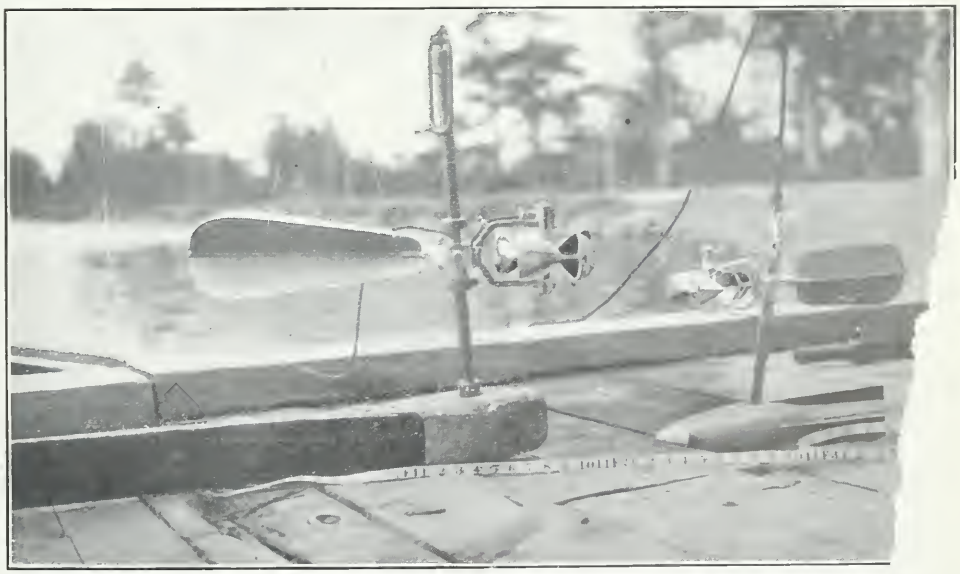
FOR THE YEAR 1911



J.E.R. Matte, Del.


REVOLUTIONS PER SECOND
VELOCITY IN FEET PER SECOND
LARGE PRICE RATINGS 1911
1908
SMALL PRICE CARD VELOCITIES
SMALL PRICE NEW POINT
HASKELL HIGH VELOCITY WHEEL
HASKELL LOW VELOCITY WHEEL
PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
CURRENT METER RATINGS
LARGE PRICE
Nº169 1911
Nº169 1908
SMALL PRICE
CARD VELOCITIES
NEW POINT
HASKELL...
HIGH VELOCITY WHEEL
LOW VELOCITY WHEEL

No. 11.—Rating meter at Dow's Lake, Rideau Canal. Boat being towed at a slow speed. For this rating speeds varied from .96 ft. per sec. to .9 ft.



No. 12.—Large and small Price meters, the former with a sixty-five pound lead weight and the latter with special fifteen pound brass headed lead sounding weight.

No. 14.—Photograph showing method of metering where channel is sufficiently narrow to allow of a rope and cable being stretched.

CURRENT METER MEASUREMENTS OF THE OTTAWA RIVER AND ITS TRIBUTARIES.

S. B. JOHNSON, Asst. Engr.

Quinze River.

Seven current meter measurements have been made of the Quinze river. Six these at a Section laid out at the village of North Timiskaming. The seventh was de at the head of Maple rapids on the 16th March, 1911.

The channel where the metering station is located at North Timiskaming is ded by an island. This made it possible to stretch a rope and a wire cable across, ching them to posts driven in on shore and on the island. The cable was gradu- in convenient lengths and served to locate the distances of the observations from , and the rope to hold the catamaran or boat in position.

These measurements or meterings are made at the foot of Quinze rapids in the of Lake Timiskaming, the surface of which does not fluctuate simultaneously hat of Quinze. Timiskaming receives other tributaries, the Montreal, the a and the Blanche which determine its surface height.

he fluctuations of Quinze lake surface, however, govern the flow down the nd the measurements of the quantity passing are necessarily referred to its d fall.

e gage on Quinze lake is not, however, in the best locality for the purpose, uated in a bay where a south wind will raise the lake level considerably at point without increasing the flow at the outlets. But elevations of the face are taken daily below the Maple rapids and these have been related uinze lake gage kept at Douglas Farm. The ordinates of the discharge e been transposed to these lower levels at the rapids.

The metering made on the 16th of March was in open water immediately above the Maple rapids. The current at this time was even, the water being very low the speed was not great enough to cause swirls amongst the surrounding boulders.

For summer meterings the section at North Timiskaming is probably not to be improved upon, but during winter anchor ice is formed above in the numerous falls and rapids. This sometimes chokes the lower stretch of river, making it impossible to arrive at the flow with any degree of accuracy.

White River.

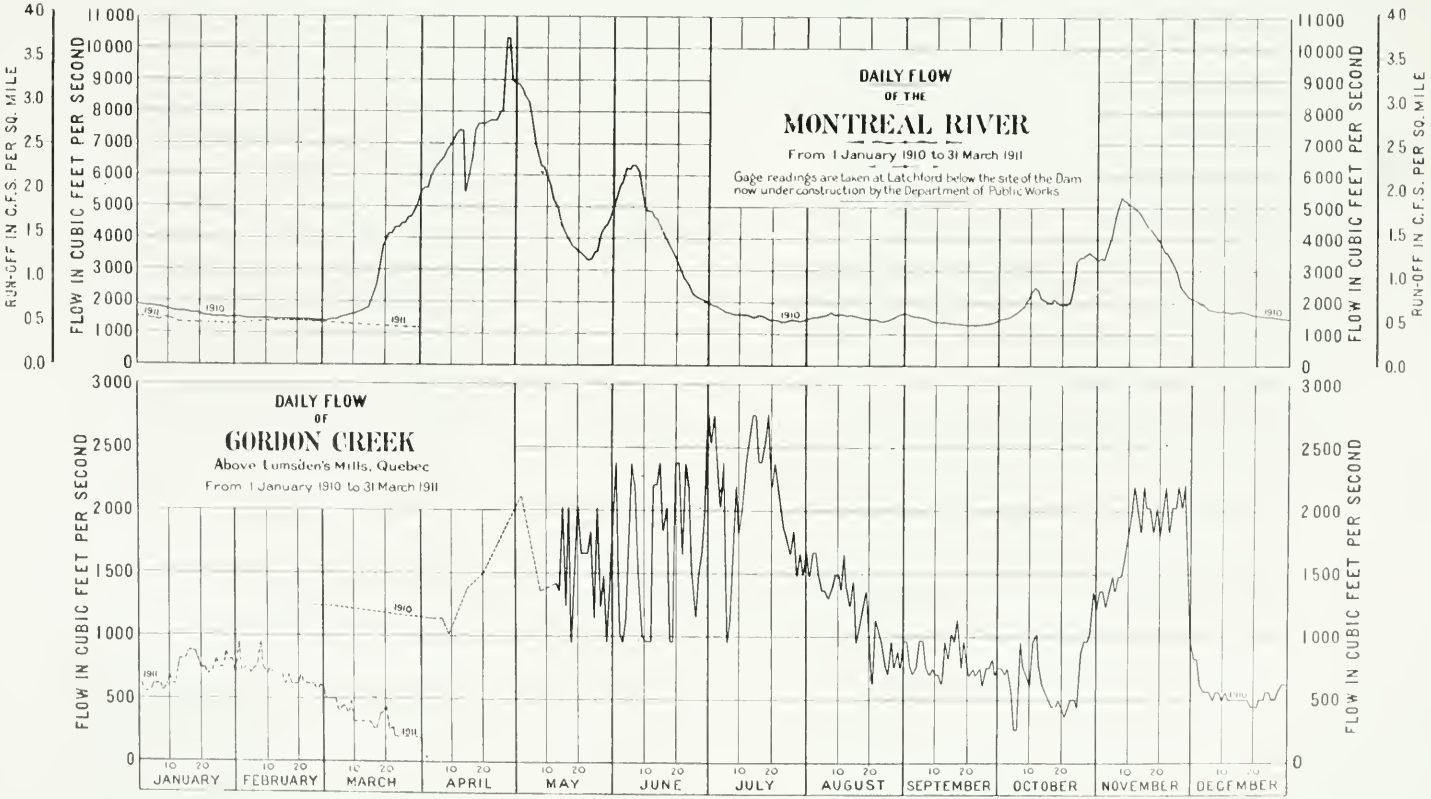
Only one metering has been made of the above river, this was taken at a medium stage after the river had fallen about 10 feet below its highest level in 1909. The highway bridge at the village of Tomstown, about 30 miles from the mouth, was used to meter from, it being impossible to find enough current within 15 miles of the mouth to turn the wheel of the current meter.

No gage has been installed on the river. therefore we have not as yet any records of the daily flow. But from marks on the banks and bridges, it evidently reaches a very high stage for a few days in the spring, receding rapidly to a flow of probably not more than 500 cubic feet per second during the fall and winter.

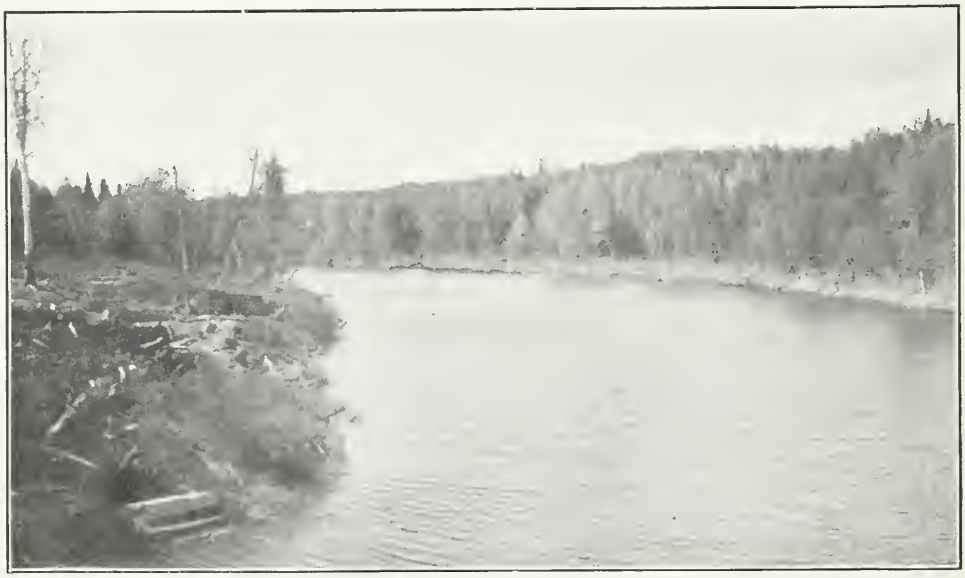
Montreal River.

The Montreal river has been metered 6 times, 4 of the measurements were made at a narrows one mile below Latchford, the remaining 2 about a mile and a half above Gillies Depot.

No. 13.—Winter metering section above the Maples, Quinze River, 16th March, 1911. The flow at this date was 3,290 c.f. s.


DAILY FLOW
OF THE
MONTREAL RIVER
From 1 January 1910 to 31 March 1911
Gage readings are taken at Latchford below the site of the Dam now under construction by the Department of Public Works
DAILY FLOW
OF
GORDON CREEK
Above Lumsden's Mills, Quebec
From 1 January 1910 to 31 March 1911
RUN-OFF IN C.F.S. PER SQ. MILE
FLOW IN CUBIC FEET PER SECOND
1910
1911
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

No. 15.—Highway bridge at Tomstown on the White River. Note highwater mark on the piers.



No 16.—White River above Tomstown, showing thickly wooded country along its shores.

A gage was placed at the mills at Latchford and has been read daily by the inspector of the dam, now being built by this department.

The gage is situated at the head of a long reach, partially controlled by the dam at Ragged Chute 5 miles below Gillies Depot. The water surface is also raised at times by the jamming of logs at the narrows below Latchford. But during the greater part of the summer season, the rating of the gage can be relied on to give a fairly accurate record of the flow, and during these jams the plotting of the daily flow is reduced by what seems a fair percentage at the time of the obstruction.

Meterings should be made during the winter season in order to ascertain the rating of the gage under ice conditions.

Kipawa River.

Five meterings have been made of this river at the outlet to Kipawa lake. Three above the old timber dam before it was removed, and the remaining two about ¼ of a mile below, during construction of the rock fill dam.

Continuous levels of the water surface have not been kept below the dam, therefore we have not as yet a daily record of the flow at this outlet of the lake.

Elevations of the water surface were taken at a point about 300 feet below the dam at the time of the various measurements. A station rating curve has been constructed by utilizing these elevations together with the measurements of discharge.

Further meterings, however, are necessary, particularly during high and medium stages, if a reliable record of the flow is to be procured.

The flow of the stream is entirely controlled by the dam built by this department, and can be cut off with the exception of leakage by closing the two sluices.

At an elevation of 881.6 on Kipawa lake and 867 below the dam, the leakage amounted to 670. cubic feet per second. The two sluices at the time of metering were closed being practically watertight, therefore this flow represented only the leakage through the rock fill.

Ottawa River.

FOOT OF TIMISKAMING LAKE.

This metering station is situated at the narrows a mile and a quarter above the head of the Long Sault rapids. It was established on the 7th of May, 1909, and has been used to arrive at the flow for lake stages ranging between elevations 591.2 and 576.7.

Owing to the construction of the dams at the head of the Long Sault, a gage had to be installed at the foot of the first rapids, at a point not influenced by back water. It was found when construction started, that lake elevations could no longer be used as a factor of the discharge: the latter being partially controlled by conditions at the dam site.

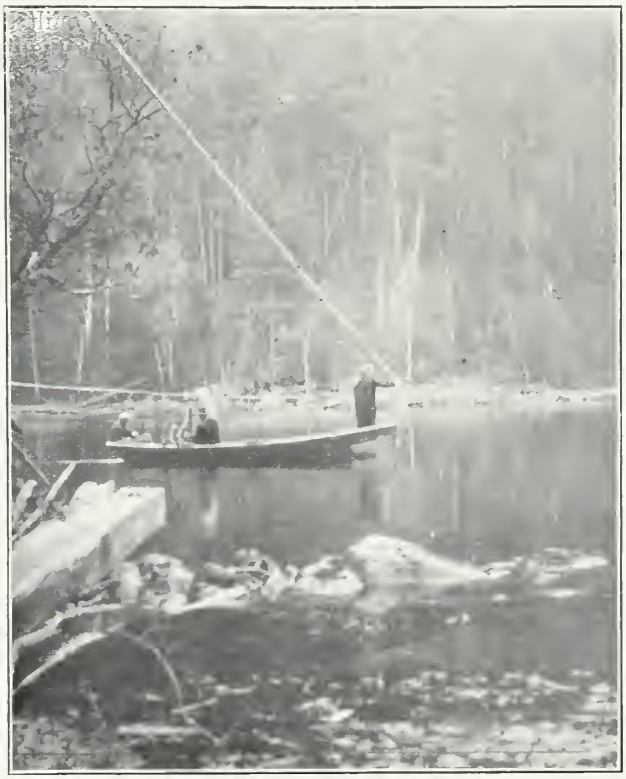
As the water at this gage site remains open all the year round, it gives one of the most reliable set of records we have obtained.

Gordon Creek.

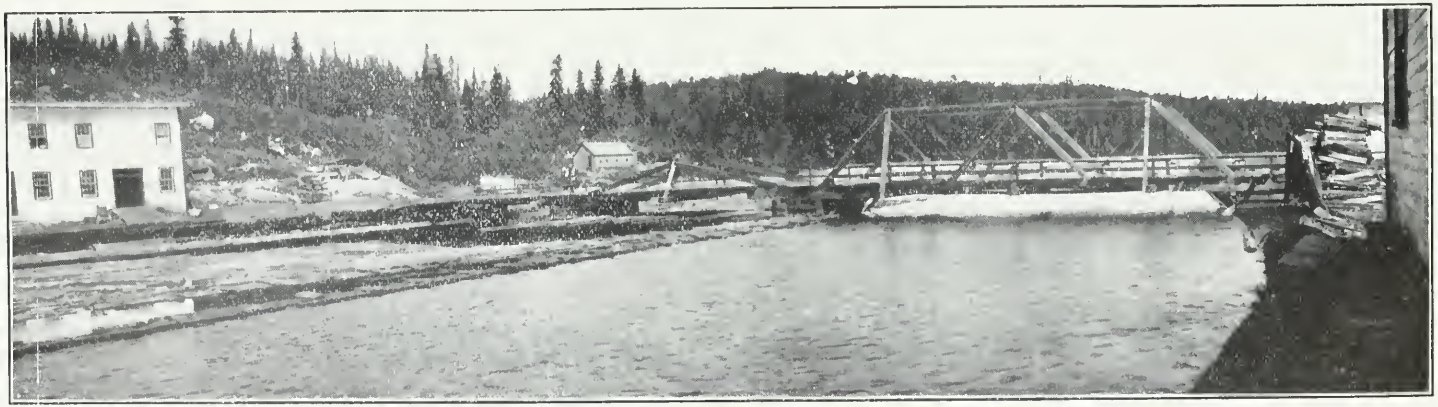
This metering station is situated at the highway bridge above Lumsden's Mills. It was installed on the 2nd June, 1909, and gives the flow from the eastern outlet of Kipawa lake.

There is a dam just below the bridge which backs the water up to the foot of Long rapid one mile and a half up stream. In order to secure a daily record of the flow, a gage was placed on the bridge immediately below the Electric power

No 17.—Kipawa River looking down from dam. Showing metering station at smooth water.



No. 18.—Metering the Kipawa River with a large Price meter.



No 19 — Bridge above Lumsden's Mills on Gordon Creek. All the meterings of the river have been made from this bridge.

house where there is no back water effect. The reach, however, is steep, there being a fall of over 200 feet inside of one mile. Consequently during the high water period when the river is running full, it is exceedingly rough, causing the water surface to fluctuate considerably around the gage. Thus a variation of 15% or 20% may be expected during high stages.

Ottawa River.

BELOW MATTAWA.

Current meter measurements have been taken at different points between Mattawa and Deux Rivieres since the 15th of May, 1905. The first section chosen was four and one half miles above Deux Rivieres; this was used up to the spring of 1908. Owing, however, to the swiftness of the current and an extremely rough bottom, it was abandoned for a section a mile and a half lower down. The latter has none of the draw backs of the former section, and is closer to Deux Rivieres, thus allowing of a longer day at the actual metering.

Gage readings have been taken at Klock Station, 10 miles above Deux Rivieres, intermittently since meterings were started. All these flow measurements have been related to these gagings, and a discharge rating curve plotted; from this the daily flow has been tabulated.

During winter it is impossible to form any close estimate of the flow as the narrows immediately below the gage site become choked with ice.

Only two winter meterings have been made here, but these show the unreliability of the gages at Klock and Mattawa during the frozen period. The discharges differed respectively 40% and 50% from those given by the open water rating of the Klock and Mattawa gages.

Therefore current meter measurements should be taken frequently during the winter if anything like a reliable estimate of the flow is to be gained. Probably the best metering section for winter use is immediately above La Vieille rapids, the anchor ice is less inclined to choke at this point than it is further up the stream.

Maganasibi River.

ONE MILE ABOVE THE MOUTH.

This river is small, having a drainage area of only 234 square miles.

A gage was installed on the highway bridge in the spring of 1905, but it was impossible to secure a Gage Reader at a reasonable salary. The river was not considered of enough importance to go to any unusual expense in securing run-off data.

Current meter measurements were made, however, each time the Ottawa river was metered above Deux Rivieres, thus giving the total flow at the proposed lock site at the Trou rapids.

Du Moine River.

ONE MILE FROM THE MOUTH.

This station has been partially rated, 3 meterings having been made at low, medium and medium high stages.

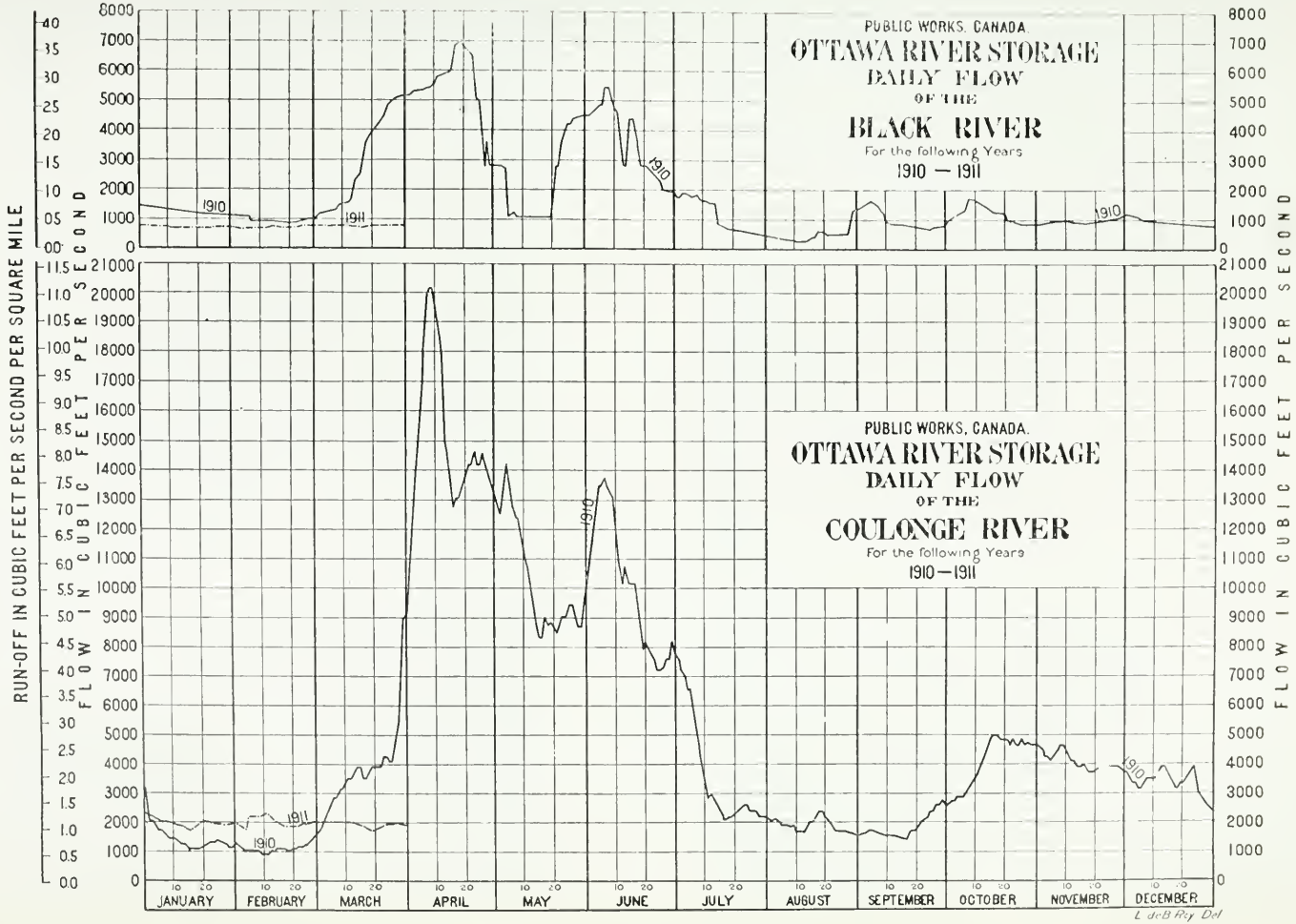
The gage was installed at the end of April, 1905, and readings taken daily, during the summer and fall; in the winter they were discontinued. The following May they were resumed and carried on until late in December. In 1908 the gage was torn from its support by logs, and has not since been replaced. It was, how-

No. 20.—Winter current meter measurement of the Ottawa River above Deux Rivieres.

No. 21 —Maganasibi River, looking north over entirely unsettled bush country.

No. 22.—Beaver cutting on the banks of the Maganasibi River. With few exceptions these trees are cut in such a way that they fall into the water, where it is easy for the animals to cut away the smaller branches and take them to their homes.

No. 23.—Large poplar trees lodged while being cut down by beavers.


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY FLOW
OF THE
BLACK RIVER
For the following Years
1910 — 1911
PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY FLOW
OF THE
COULONGE RIVER
For the following Years
1910—1911
RUN-OFF IN CUBIC FEET PER SECOND PER SQUARE MILE
FLOW IN CUBIC FEET PER SECOND
1910
1911
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
L deB Fry Del

No. 24.—Black River gaging and metering station at Waltham, Quebec.

No. 25.—A bushman's home—a common sight in the forests of Ontario and Quebec.

ever, referred to a bench mark on shore thus securing a reliable reference for future measurements. It will be necessary to build a pier or some solid support if a new gage is to be placed, as there are no bridges or dams which could be utilized for this purpose.

The conditions at the gage site are excellent for meterings and daily flow records and these should be resumed at the first opportunity.

Petawawa River.

Ten current meter measurements have been made of this river, from the highway bridge, a mile and a half above the mouth.

A gage was placed in the spring of 1905 at the head of the Third Chute, immediately above the rapids. Daily readings were taken during the summer of 1905; they were then discontinued until 1908, when the gage was read during May and June,—the high water period. Readings were again started in April, 1909, and have been continued to date.

Some trouble is experienced by logs jamming in the rapids below the gage, but this is only during short periods. A reduction is made in the daily flow to compensate for this back water effect on the gage.

The metering station is not an ideal one, and can possibly be improved by going further up the river. The current underneath the bridge averages as high as 5 feet per second during maximum stages.

Two gages are now used, one for low water periods and the other which is in a quieter part of the river is read during medium and high stages.

Ottawa River.

CULBUTE CHANNEL.

Five current meter measurements were made of this channel, 2 from the old highway bridge at Chapeau and 3 below the mouth of the Black river. The meterings were made primarily to determine the proportion of flow from the Culbute Channel and that out of Allumette lake.

Indian River.

AT PEMBROKE.

Three meterings were made of this river during 1905, and a gage was read during that season. The watershed, however, is small and storage possibilities so poor that gagings were not continued.

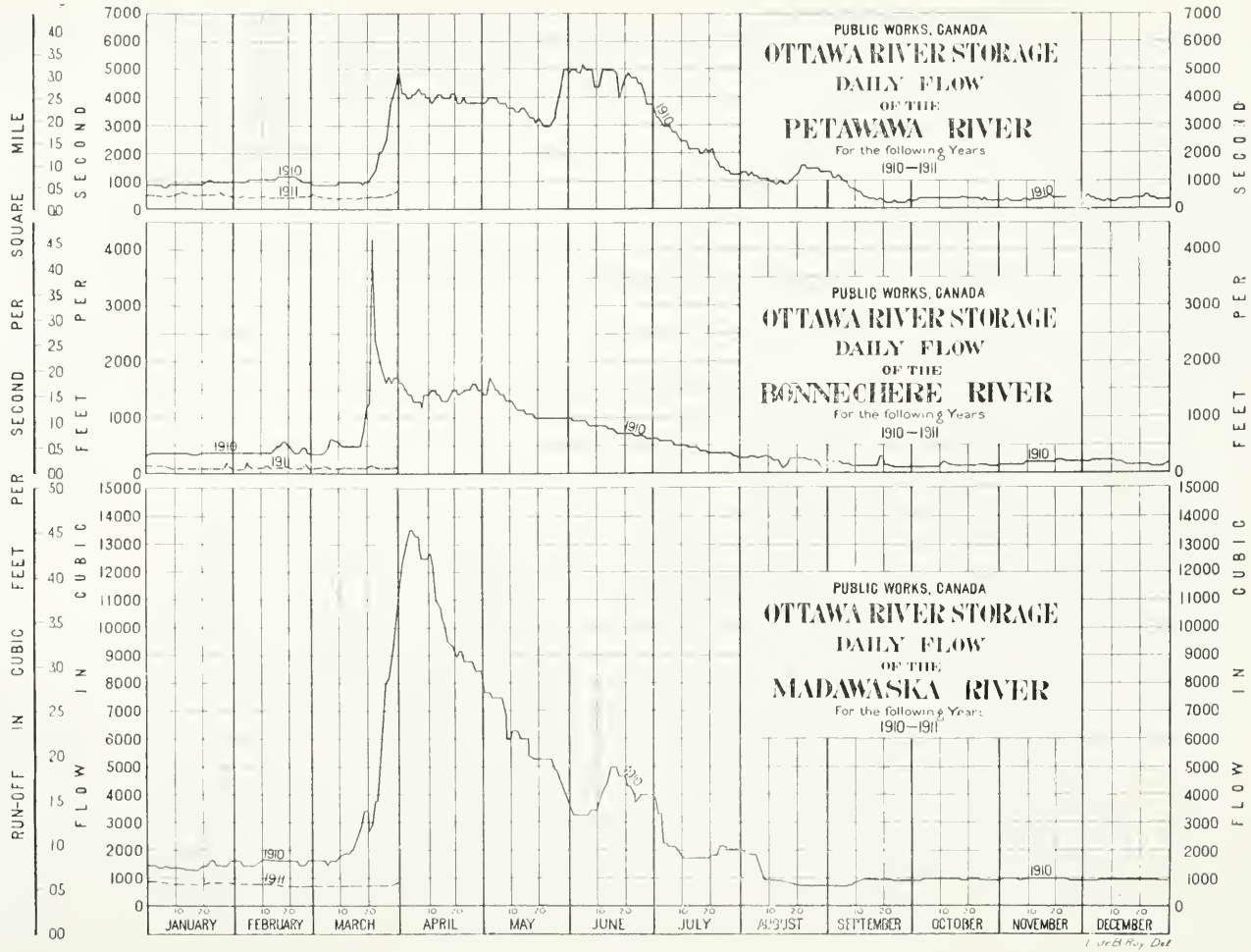
Black River.

AT WALTHAM.

Four current meter and two float measurements were made just above High falls, the meterings were made from the highway bridge.

A gage was placed in April, 1905, on the highway bridge above the dam. Daily readings were taken up to the 15th of November, these were discontinued until the middle of May, 1909, when readings were resumed, and continued (with 3 months intermission) to date.

This station may be considered good, the flow is even and not too swift at the bridge and varies almost directly with the stage of water. The dam is of an overflow type and seldom goes dry.


PUBLIC WORKS, CANADA
OTTAWA RIVER STORAGE
DAILY FLOW
OF THE
PETAWAWA RIVER
For the following Years
1910—1911
PUBLIC WORKS, CANADA
OTTAWA RIVER STORAGE
DAILY FLOW
OF THE
BONNECHERE RIVER
For the following Years
1910—1911
PUBLIC WORKS, CANADA
OTTAWA RIVER STORAGE
DAILY FLOW
OF THE
MADAWASKA RIVER
For the following Years
1910—1911
RUN-OFF IN CUBIC FEET PER SECOND PER SQUARE MILE
FLOW IN CUBIC FEET PER SECOND
1910
1911
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

No. 26.—First chute on the Petawawa River, showing remains of old highway bridge not yet replaced.

No. 27.—A portion of the military camps at Petawawa, Ontario.

No. 28.—Gages at the head of the 3rd chute, Petawawa River. River at this point, when the water is low, is sometimes jammed with logs, causing back water on the gages.

No. 29.—Indian River dam at Pembroke, showing ordinary high water flow.

No. 30.—Falls on the Mississippi River at Galetta, Ontario.

Winter meterings have not been made, therefore it is impossible to determine to what extent the rating of the gage would be affected by ice.

Ottawa River.

ONE MILE BELOW ALLUMETTE ISLAND.

Three meterings were made at this point, the ferry boat which crosses between the Ontario and Quebec shores being used for the purpose.

No separate rating was made of this reach as the Coulonge river empties in below, backing the water up to the foot of Panquette rapids.

Flow measurements were made in conjunction with the Culbute meterings in order to determine the division of the two channels.

Coulonge River.

Seven measurements of the flow of this river have been made, four by current meter and three by floats.

The Ottawa river backs up to the foot of High falls, therefore the gage had to be placed above these falls; this has been partially rated. Owing to some changes made in the dam at the head of these falls further meterings are required.

The gage was placed towards the end of April, 1905, and readings taken up to the middle of November of the same year. It was again read during May and June, 1908, but discontinued until the 16th of May, 1909; since then it has been read continuously to date.

The gage is at the head of the falls and therefore should not be greatly affected by ice conditions.

Ottawa River.

AT LA PASSE.

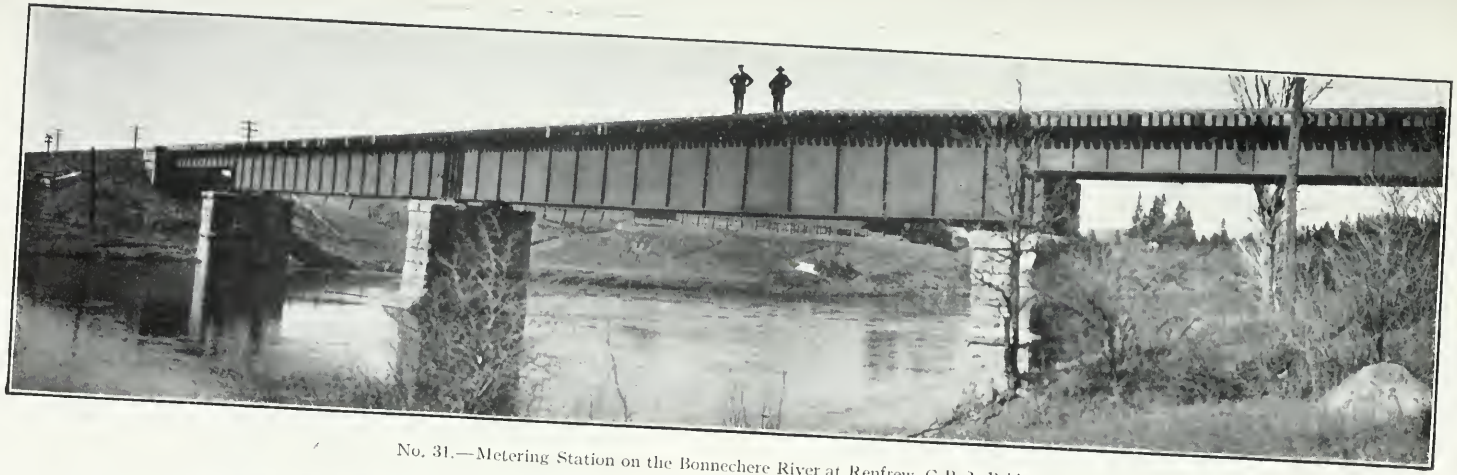
Four current meter and 5 float measurements were made of the main Ottawa river opposite the village of La Passe. This is about ½ mile above Calumet Island. It forms one of the most suitable stretches on the river for meterings. Natural conditions still remain at the head of the Grand Calumet and Roche Fendu falls, therefore the stage of Coulonge lake is a direct factor of the discharge.

A gage was placed on a pier opposite the village of La Passe, and readings started on the 17th of February, 1905; these were continued to the 27th of January, 1906. Gagings were then discontinued and have not been resumed. Current meter and float measurements were however made in 1907 and 1908. These gage readings and meterings should be resumed, because large tributaries flow into the river between this reach and those stations which have been in continuous operation. This office was fortunate in securing weekly summer readings by Mr. A. A. Richards at the head of Coulonge lake from June, 1894, to the end of October, 1904

Calumet Channel.

OTTAWA RIVER.

Three current meter measurements were made of this channel, one a short distance from Campbell's Bay at the ferry crossing to Calumet village. The remaining two were made from an open boat about four miles above Campbell's Bay.

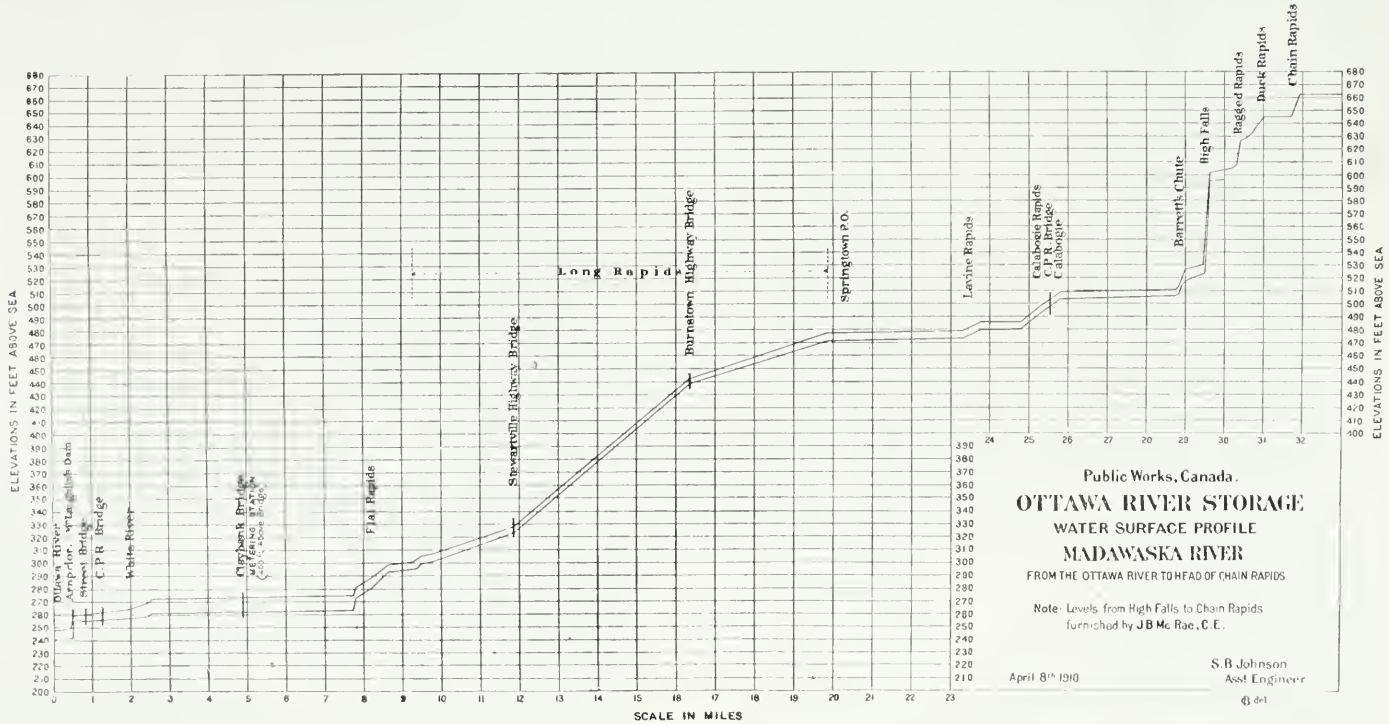


No. 31.—Metering Station on the Bonnechere River at Renfrew, C.P.R. Bridge.

No. 32.—Mills Below the Proposed Electric Power Plant at Renfrew, Ontario

No. 33.—Old dam on the Bonnechere River at Renfrew, showing an ordinary spring flow.

No. 34.—High water at Renfrew, spring of 1909.


Public Works, Canada.
OTTAWA RIVER STORAGE
WATER SURFACE PROFILE
MADAWASKA RIVER
FROM THE OTTAWA RIVER TO HEAD OF CHAIN RAPIDS
Note: Levels from High Falls to Chain Rapids furnished by J.B. Mc. Rae, C.E.
April 8th 1910
S.B. Johnson
Ass't Engineer
ELEVATIONS IN FEET ABOVE SEA
SCALE IN MILES
Ottawa River
Arnprior
Street Bridge
C.P.R. Bridge
White River
Clybank Bridge
Flat Rapids
Stewartville Highway Bridge
Long Rapids
Burnstown Highway Bridge
Springtown P.O.
Levine Rapids
Calabogie Rapids
C.P.R. Bridge
Calabogie
Barrett's Chute
High Falls
Ragged Rapids
Duck Rapids
Chain Rapids

These with the La Passe meterings give the proportionate discharge out of Coulonge lake between the Calumet and Roche Fendu Channels. A gage was placed on the 14th of February, 1905, on the wharf at the village of Bryson. Daily readings were taken up to the end of December, 1906, and then discontinued.

Bonnechere River.

Nine current meter measurements have been made from the Canadian Pacific Railway bridge at Renfrew. These meterings cannot, however, all be related to the gage readings owing to the breaking of one of the dams at Renfrew, and the construction of a new dam and power house.

The gage is situated between two dams, immediately above the intake of the Renfrew Electric Co.'s power house. Daily readings have been taken since the 15th of April, 1909.

Madawaska River.

Thirteen current meter measurements were made at various points on the first five miles of this river. The site finally selected for permanent meterings is situated about three hundred yards above Clay Bank bridge. It has the advantage of being on the same reach as the gage, and has an even flow and straight channel.

One metering was made under ice conditions, this was found to correspond very closely to the summer rating of the gage at Clay Bank bridge. This gage was placed on the 15th of April, 1909; daily readings have been taken to date.

Meterings should be continued in order to have a more through rating of the gage. The measurements made in 1905 were not related to this stretch of the river, the gage not having been placed at that date.

Mississippi River.

Five current meter measurements were made of this river, near the town of Galetta.

The station has never been thoroughly rated, only a few gage readings being taken during 1905. The gage was placed on the old dam at Galetta, but was taken out when the new dam was built and has not since been replaced.

Ottawa River.

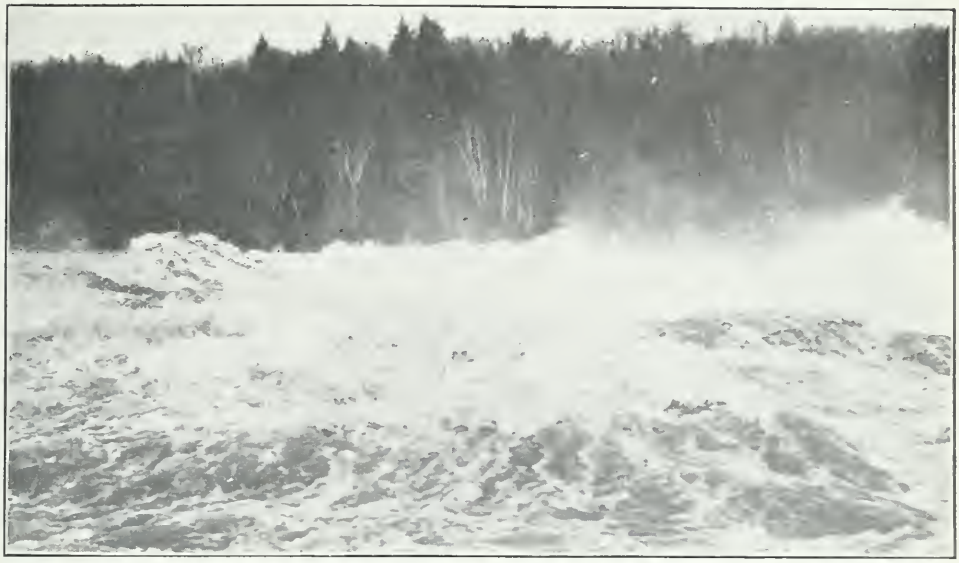
ABOVE CHAUDIERE FALLS.

Ten current meter measurements have been made at different points below the Deschenes rapids.

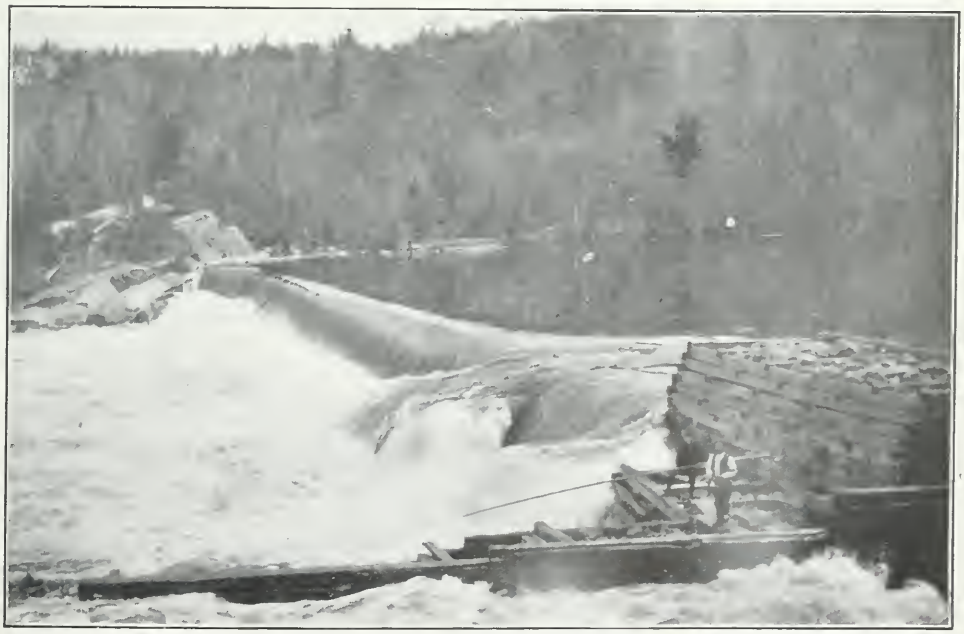
Probably the most satisfactory locality at which to make discharge measurements is situated just above the Canadian Pacific Railway bridge. Here the river is broken up by islands and the channels between provide an exceptionally even flow of medium velocity, conditions requisite for satisfactory results. These channels have all been separately metered.

The discharge curve was plotted by utilizing the water levels at the head of Deschenes rapids in conjunction with the meterings made below. Daily gage readings have been taken at the former place since the 2nd of July, 1901, thus giving a good record of the flow immediately above Ottawa.

The surface fluctuation of Deschenes lake between high and low water is about 8 feet, representing an average flow of 23,000 cubic feet per second for every foot rise on the lake; this rate of discharge increasing and decreasing as the lake rises or falls.



No. 35.—Foot of the first chute, High Falls, Madawaska River.



No. 36.—Timber dam at the head of High Falls, Madawaska River.

No. 37.—Calabogie Lake, Madawaska River, Ontario.

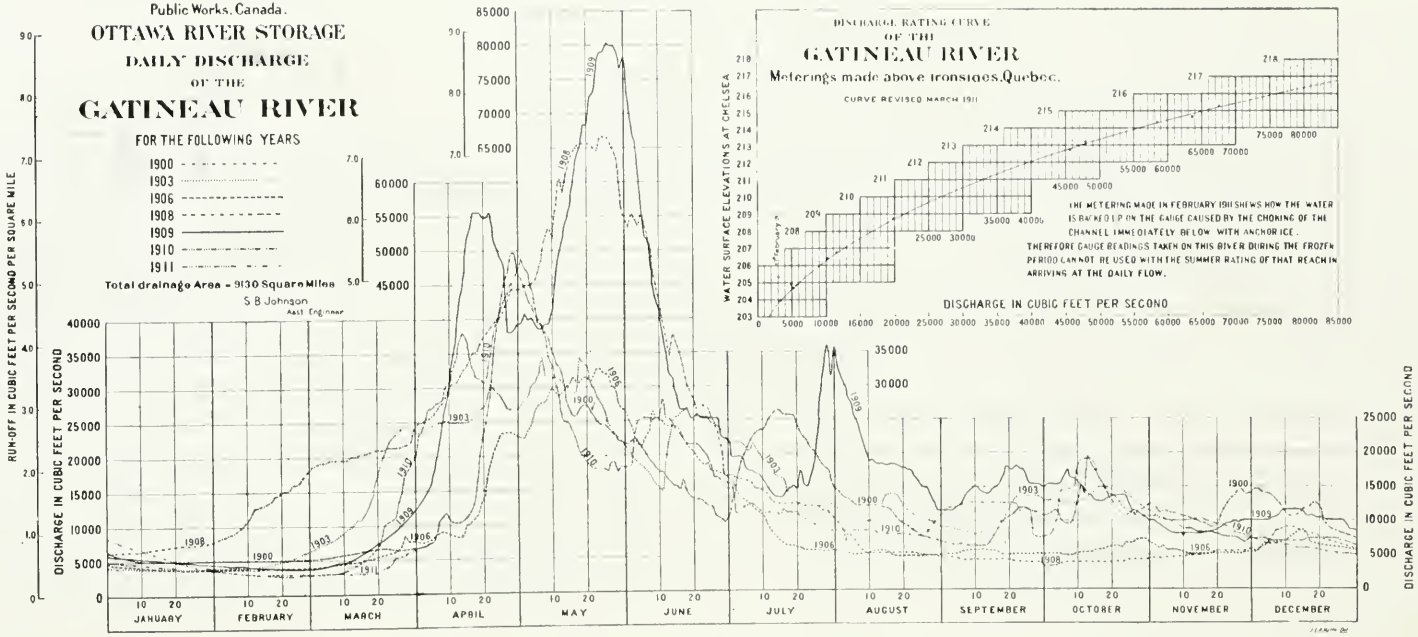
No. 38.—High Falls on the Madawaska River, above Calabogie, Ontario.

No. 39.—Winter metering on the Madawaska River.

No. 40.—Current meter is in the water. Engineer is timing the revolutions of the wheel by means of a stop watch and telephone receiver.

No. 41.—Head of Deschênes Rapids, Ottawa River.

No. 42.—Rideau Falls, at Ottawa, Ont.


Public Works, Canada.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
GATINEAU RIVER
FOR THE FOLLOWING YEARS
1900
1903
1906
1908
1909
1910
1911
Total drainage Area = 9130 Square Miles
S B Johnson
Asst Engineer
RUN-OFF IN CUBIC FEET PER SECOND PER SQUARE MILE
DISCHARGE IN CUBIC FEET PER SECOND
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
DISCHARGE RATING CURVE
OF THE
GATINEAU RIVER
Meterings made above Ironsides, Quebec.
CURVE REVISED MARCH 1911
WATER SURFACE ELEVATIONS AT CHELSEA
DISCHARGE IN CUBIC FEET PER SECOND
THE METERING MADE IN FEBRUARY 1911 SHEWS HOW THE WATER IS BACKED UP ON THE GAUGE CAUSED BY THE CHOKING OF THE CHANNEL IMMEDIATELY BELOW WITH ANCHOR ICE.
THEREFORE GAUGE READINGS TAKEN ON THIS RIVER DURING THE FROZEN PERIOD CANNOT BE USED WITH THE SUMMER RATING OF THAT REACH IN ARRIVING AT THE DAILY FLOW.

Rideau River.

Several current meter measurements were made of the river at flows varying between 9,400 and 400 cubic feet per second.

The meterings were all made from the Grand Trunk Railway bridge, at that time owned by the Canada Atlantic Railway.

Gage readings were carried on for only a few months at this stretch, and were taken from a gage placed on the old highway bridge at Hurdman's crossing. The gage was removed with the bridge and was not replaced upon the completion of the new structure.

Through the kindness of Mr. Phillips of the Railways and Canals Department we are now receiving daily readings of the upper and lower gages at Black rapids, about 6½ miles above Hurdman's bridge.

Gatineau River.

Twenty current meter measurements have been made of the river, 17 just above the village of Ironsides, 3½ miles from the mouth. One was made of the Desert river at Maniwaki, one of the main river below Baskatong bridge and one of the Gens de Terre river below the first chute.

Only one metering has been made during the winter. The summer metering section at Ironsides could not be used for this purpose, owing to the channel being choked with anchor ice. A point was chosen above the rapids at Wright's island where the channel was partly frozen over, was close enough to the rapids to allow the anchor ice to move away freely.

The gage was installed in May, 1905, below the old dam and mill at Chelsea, 2½ miles above the metering section at Ironsides.

Water surface elevations at the same place have been supplied us by Mr. C. H. Keefer of Ottawa for 4 years prior to this date.

The elevations at Chelsea during the winter cannot be depended on to give anything like accurate flow results. Meterings should therefore be carried on at intervals during that season.

Ottawa River.

AT BESSERER'S GROVE.

This metering station is situated 9 miles below Ottawa. More attention has been given to it than to any other part of the Ottawa river, mainly because of the great length of time gage readings are available at Ottawa city, and its importance as a power centre.

Twenty current meter measurements have been made at discharges varying between 217,000 and 15,600 cubic feet per second. From these measurements and the gage readings taken at the same date the discharge curve was plotted. It has been revised slightly since it was published in the Georgian Bay Canal Report, a number of meterings having been made since then, giving further points on the curve.

The reach between Ottawa and Grenville is 60 miles in length, in this distance some of our largest tributaries empty into the Ottawa river.

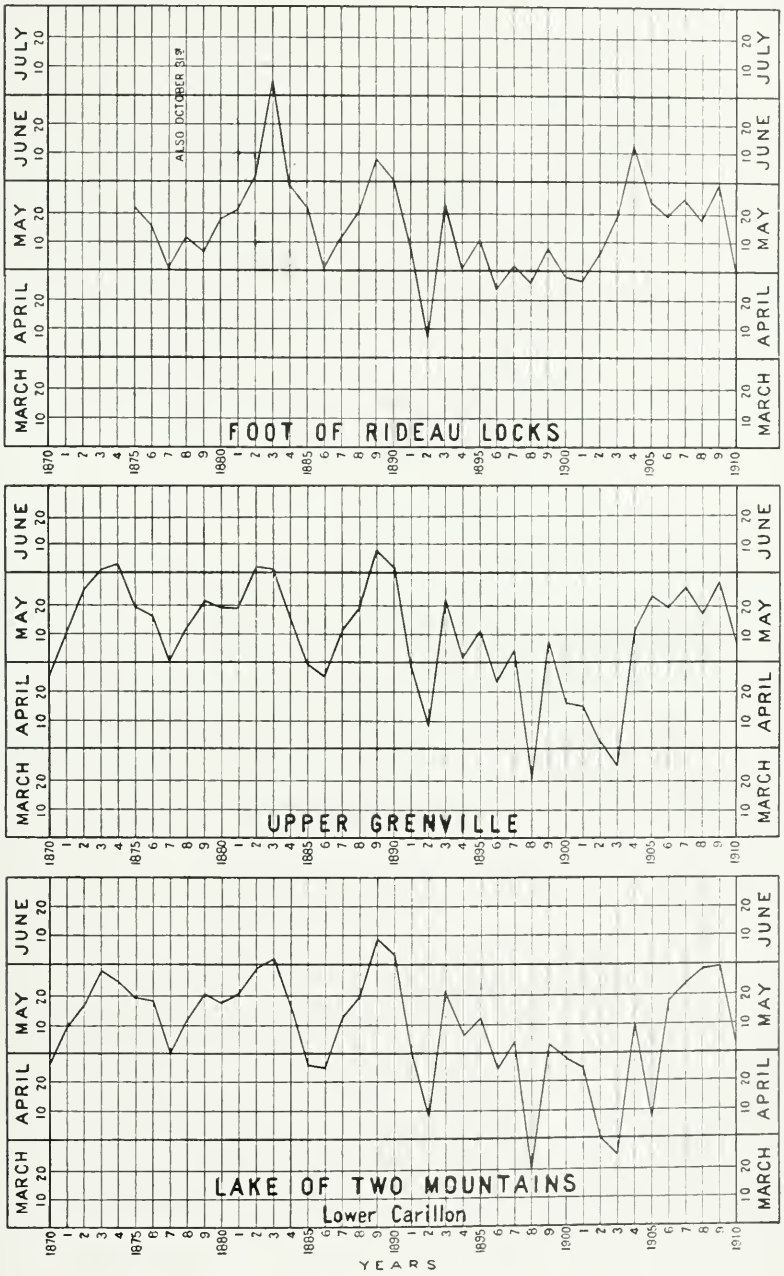
As may be seen these streams, particularly the Gatineau and Du Lievre rivers representing a total drainage area of over 13,000 square miles, sometimes discharge their waters into the Ottawa at a greater rate per square mile than is flowing directly down the main stream. This has a tendency to back the water up on the Rideau locks gage at Ottawa. This is clearly shown on the diagram giving the discharge

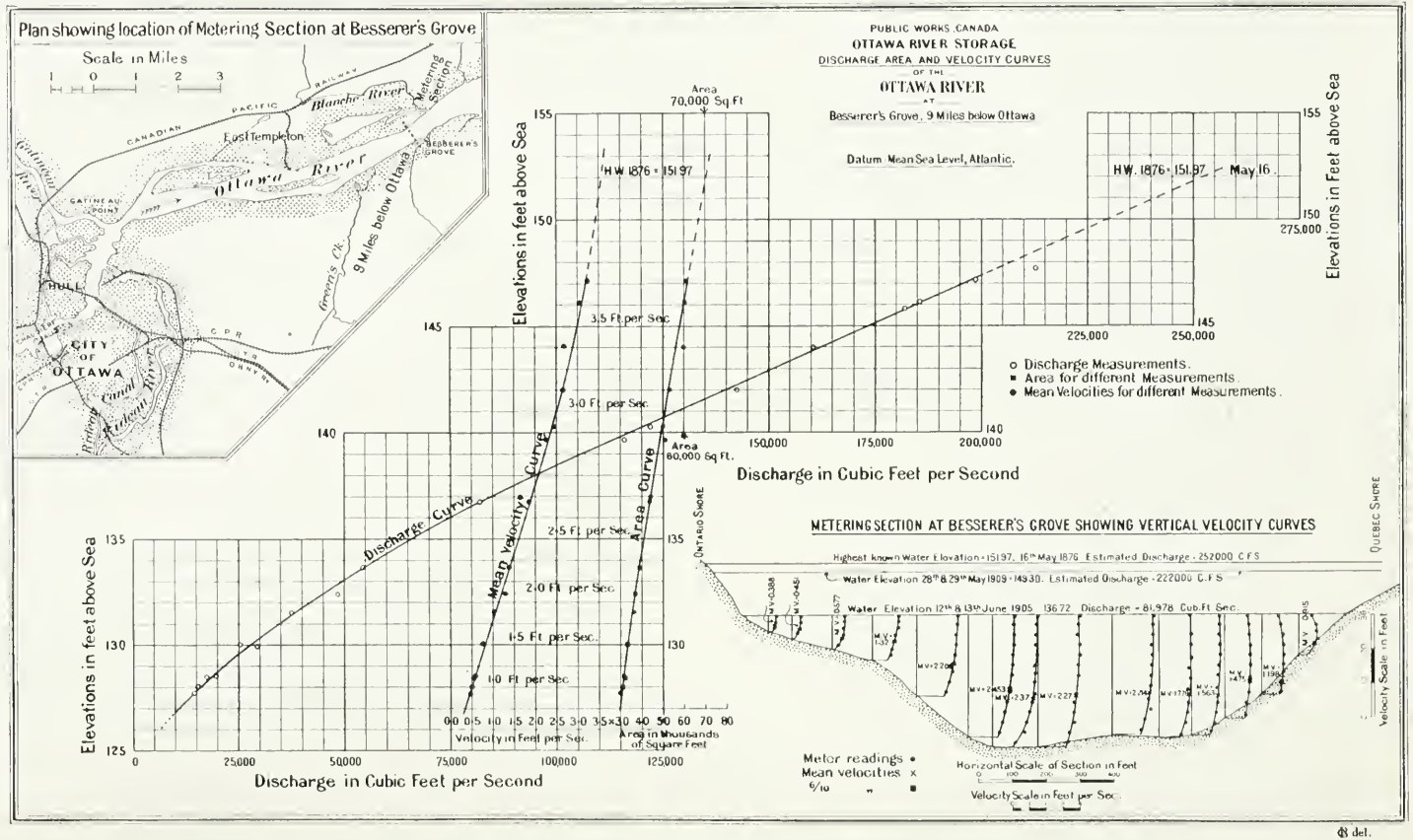
No 43.—Winter metering of the Gatineau River immediately above Wright's Island.

No. 44.—Metering in progress on the Gatineau River below Baskatong bridge. At the date of metering (August, 1907) there was flowing 3,400 second feet.

DIAGRAM SHEWING DATES ON WHICH HIGH WATER OCCURRED
ON THE OTTAWA RIVER BETWEEN OTTAWA AND MONTREAL
FOR THE YEARS 1870 TO 1910 INCLUSIVE

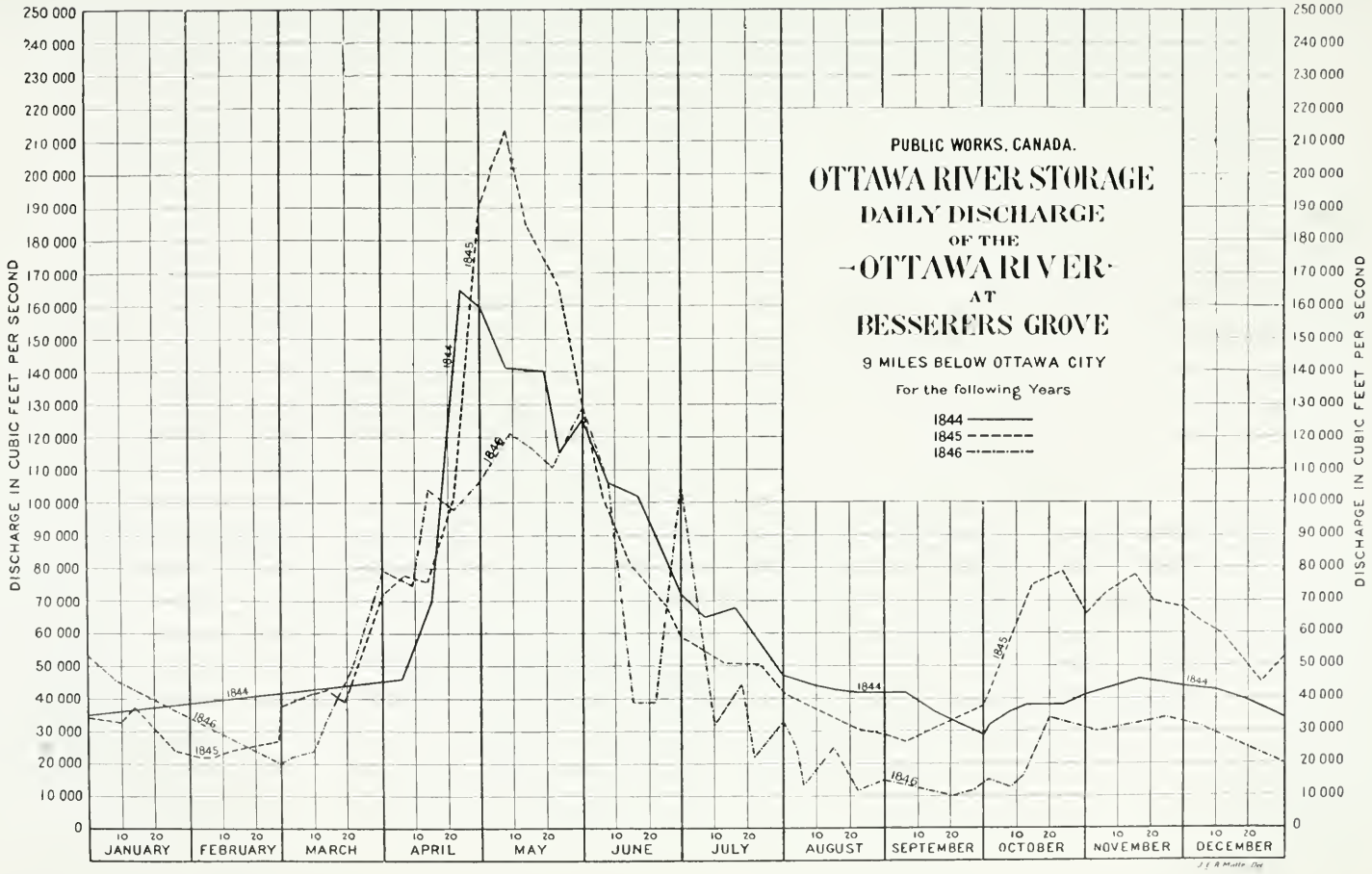
DATA SUPPLIED BY THE
DEPARTMENT OF RAILWAYS & CANALS

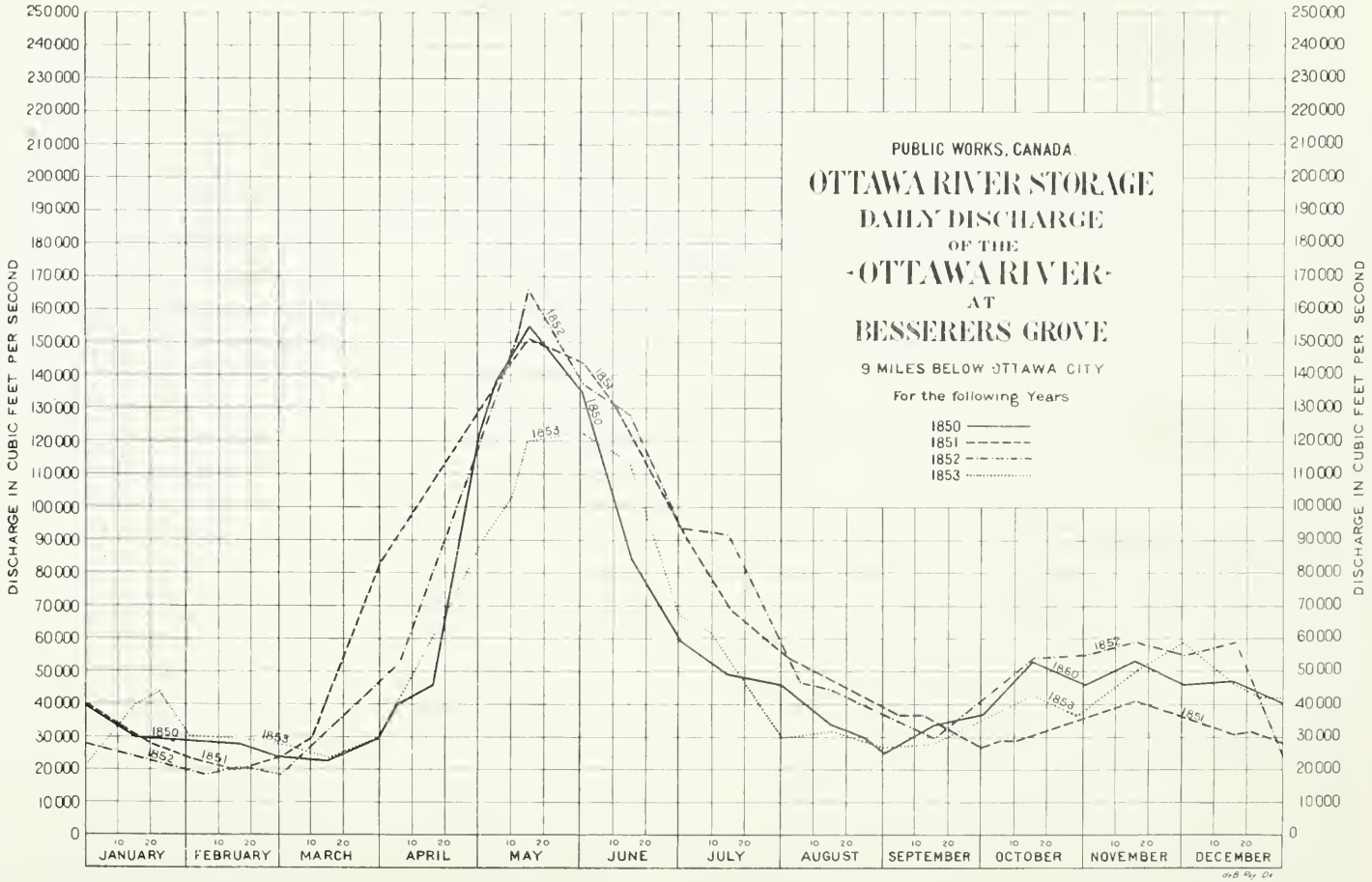


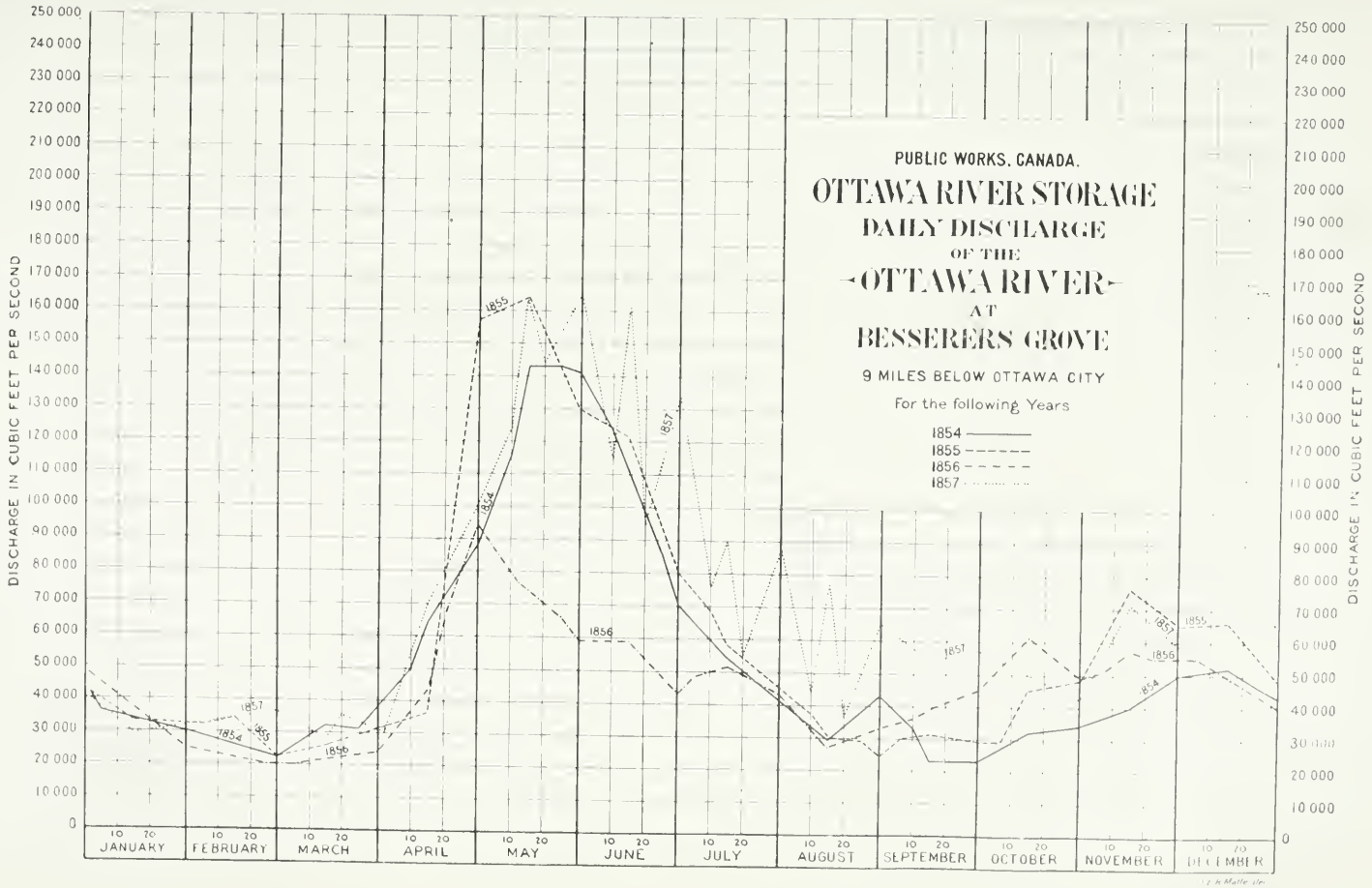


Plan showing location of Metering Section at Besserer's Grove
Scale in Miles
1 0 1 2 3
CANADIAN PACIFIC RAILWAY
Blanche River
Metering Section
East Templeton
BESSERER'S GROVE
Ottawa River
Gatineau River
GATINEAU POINT
9 Miles below Ottawa
Green's Ck.
HULL
CITY OF OTTAWA
Canal
Rideau River
C P R
PUBLIC WORKS, CANADA
OTTAWA RIVER STORAGE
DISCHARGE AREA AND VELOCITY CURVES
OF THE
OTTAWA RIVER
AT
Besserer's Grove, 9 Miles below Ottawa
Datum Mean Sea Level, Atlantic.
Area 70,000 Sq Ft
H.W. 1876 = 151.97
H.W. 1876 = 151.97 May 16.
3.5 Ft per Sec
3.0 Ft per Sec
2.5 Ft per Sec
2.0 Ft per Sec
1.5 Ft per Sec
1.0 Ft per Sec
Area 60,000 Sq Ft.
Discharge Curve
Mean Velocity Curve
Area Curve
Elevations in feet above Sea
Discharge in Cubic Feet per Second
Velocity in Feet per Sec.
Area in thousands of Square Feet
o Discharge Measurements.
▪ Area for different Measurements.
• Mean Velocities for different Measurements.
METERING SECTION AT BESSERER'S GROVE SHOWING VERTICAL VELOCITY CURVES
ONTARIO SHORE
QUEBEC SHORE
Highest known Water Elevation = 151.97, 16th May 1876 Estimated Discharge = 252000 C.F.S.
Water Elevation 28th & 29th May 1909 = 149.30. Estimated Discharge = 222000 C.F.S.
Water Elevation 12th & 13th June 1905 136.72 Discharge = 81,978 Cub.Ft. Sec.
Velocity Scale in Feet
Meter readings •
Mean velocities x
6/10 " ▪
Horizontal Scale of Section in Feet
Velocity Scale in Feet per Sec.

del.


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1844
1845
1846
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
10 20
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1850
1851
1852
1853
DISCHARGE IN CUBIC FEET PER SECOND
250000
240000
230000
220000
210000
200000
190000
180000
170000
160000
150000
140000
130000
120000
110000
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1854
1855
1856
1857
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
JANUARY
FEBRUARY
MARCH
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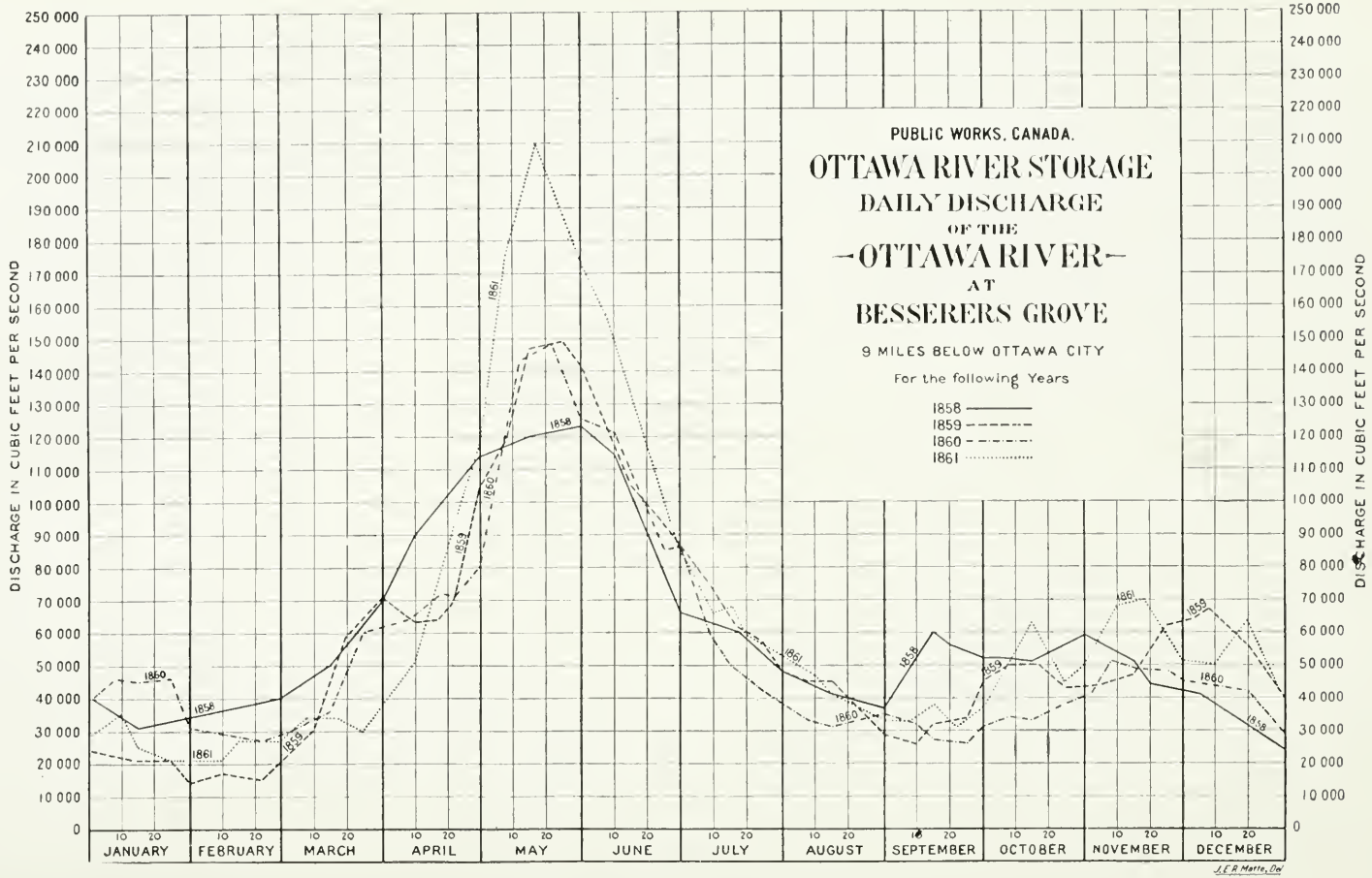
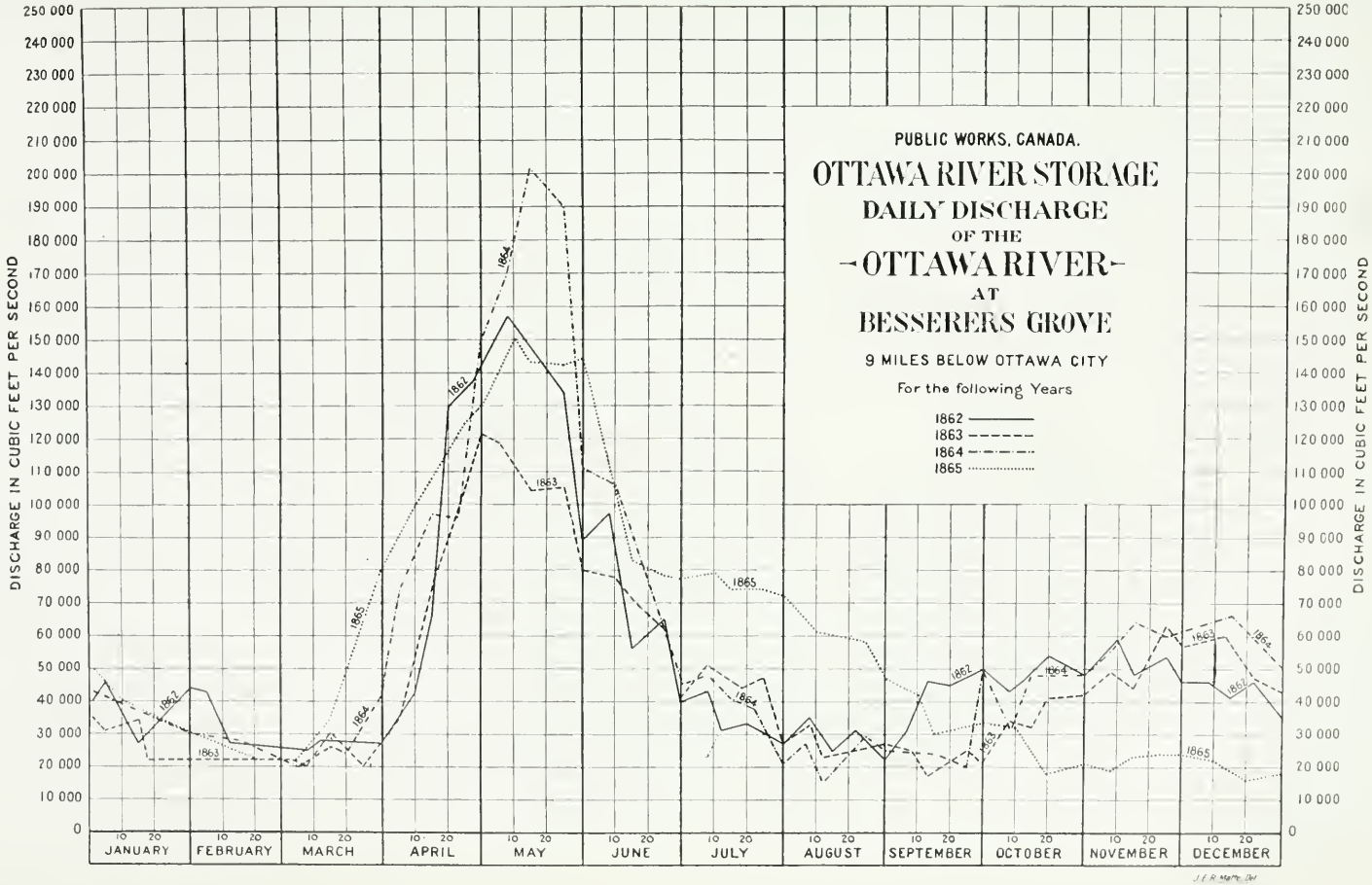
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
—OTTAWA RIVER—
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1858
1859
1860
1861
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
J.E.R. Matte, Del


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1862
1863
1864
1865
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
JANUARY
FEBRUARY
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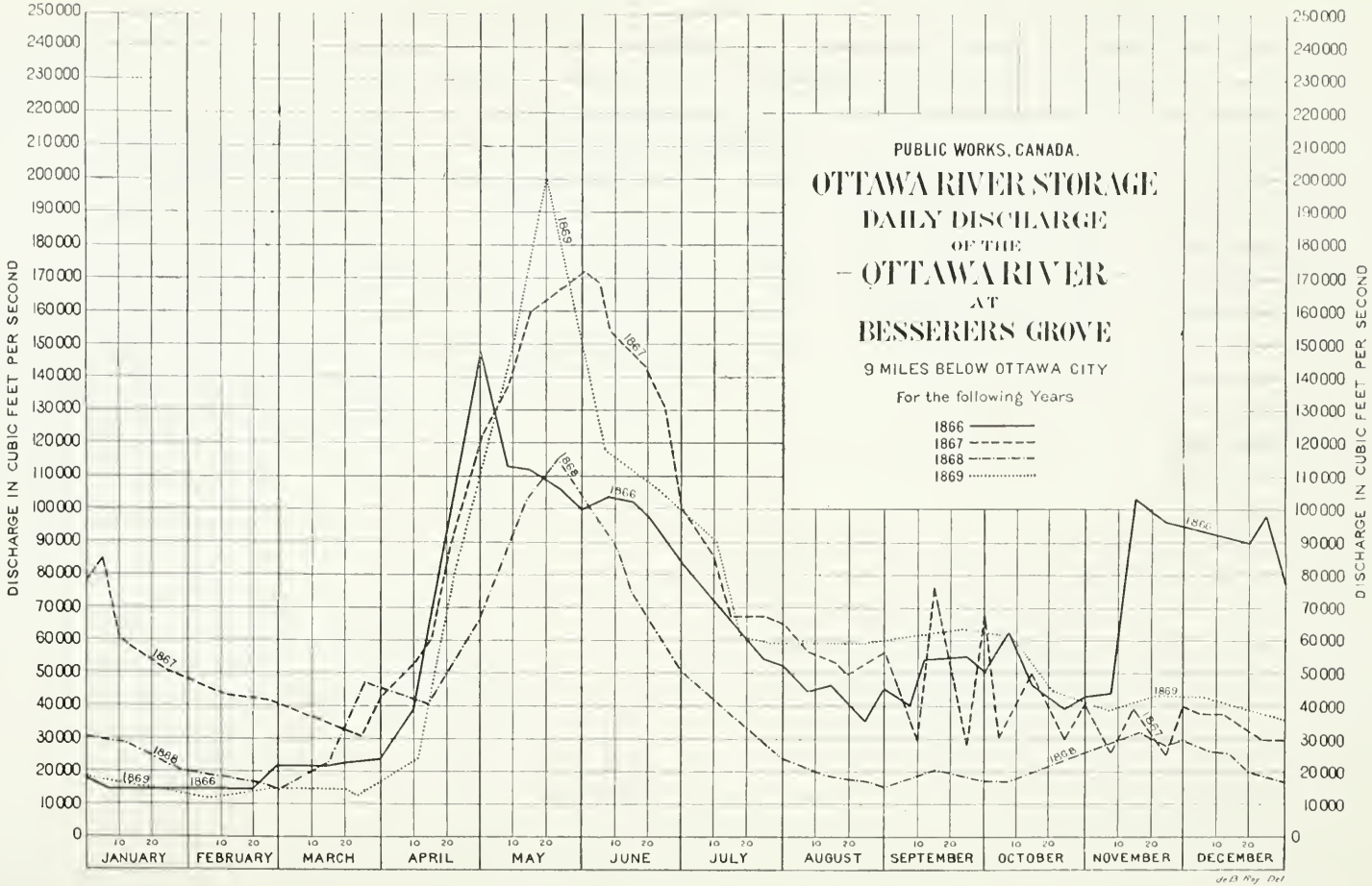
NOVEMBER
DECEMBER


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1866
1867
1868
1869
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
JANUARY
FEBRUARY
MARCH
APRIL
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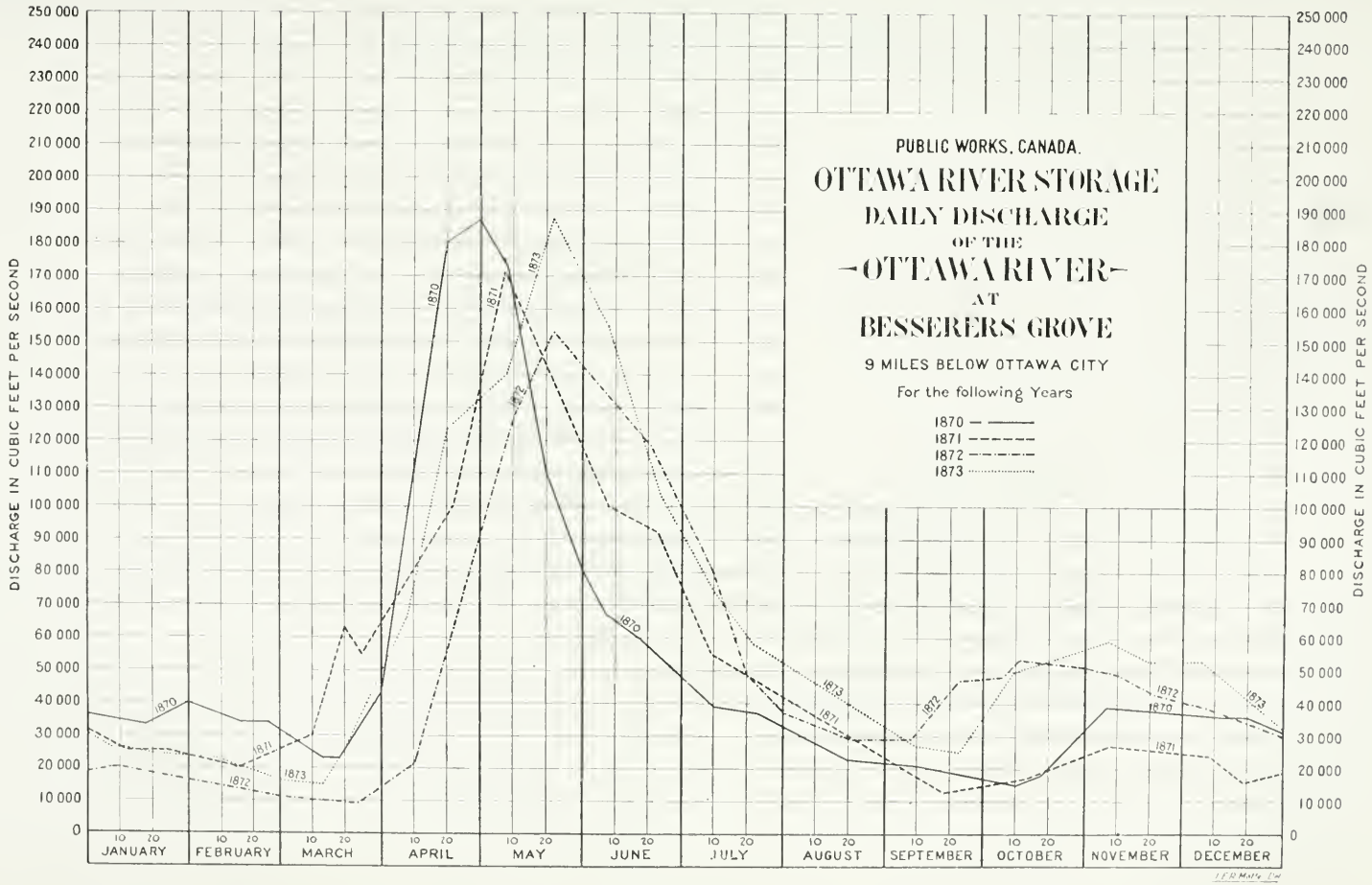
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1870
1871
1872
1873
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
JANUARY
FEBRUARY
MARCH
APRIL
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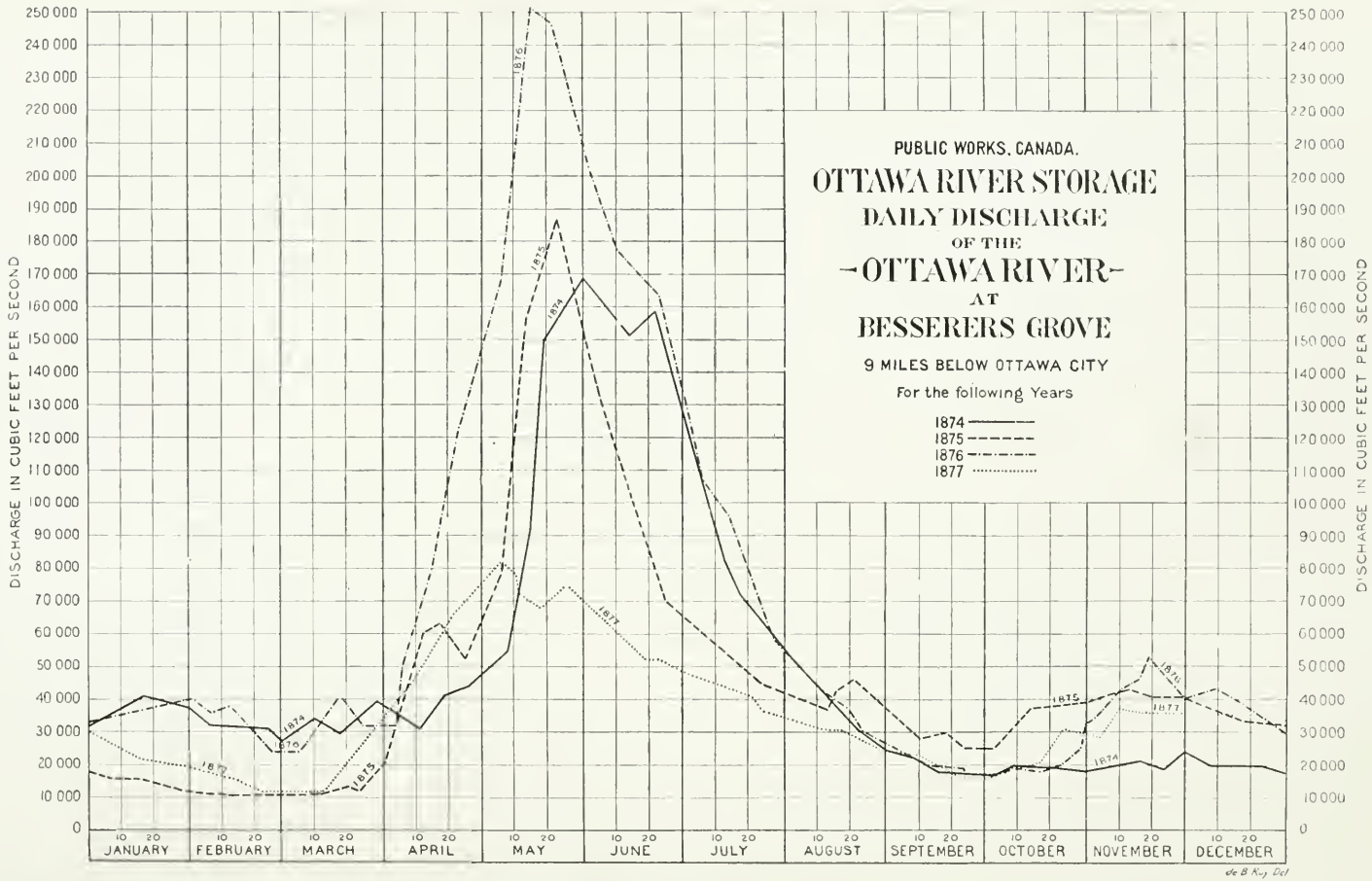
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER


PUBLIC WORKS. CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
-OTTAWA RIVER-
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1874
1875
1876
1877
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
JANUARY
FEBRUARY
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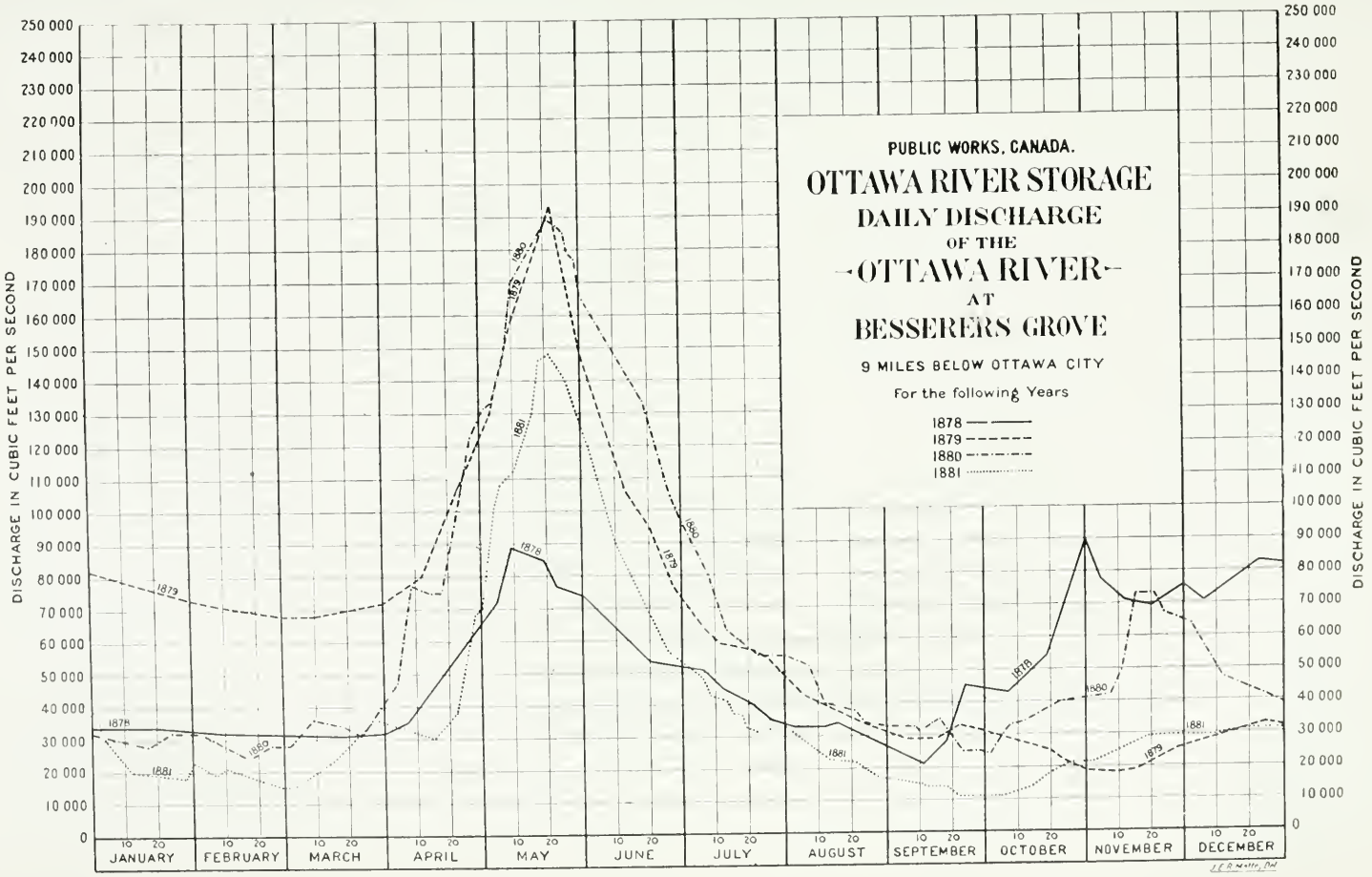
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
de B K.y Del


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1878
1879
1880
1881
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
JANUARY
FEBRUARY
MARCH
APRIL
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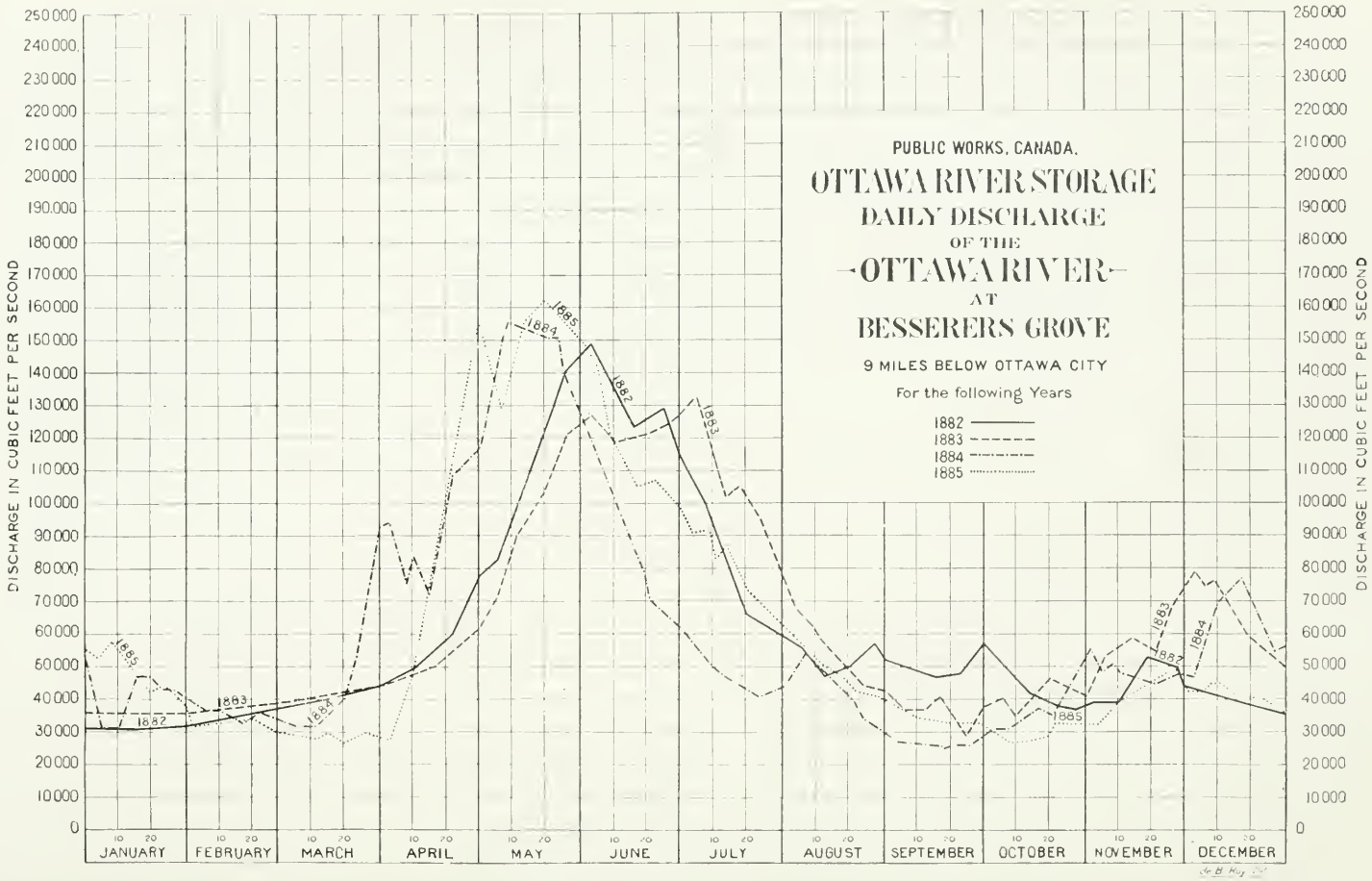
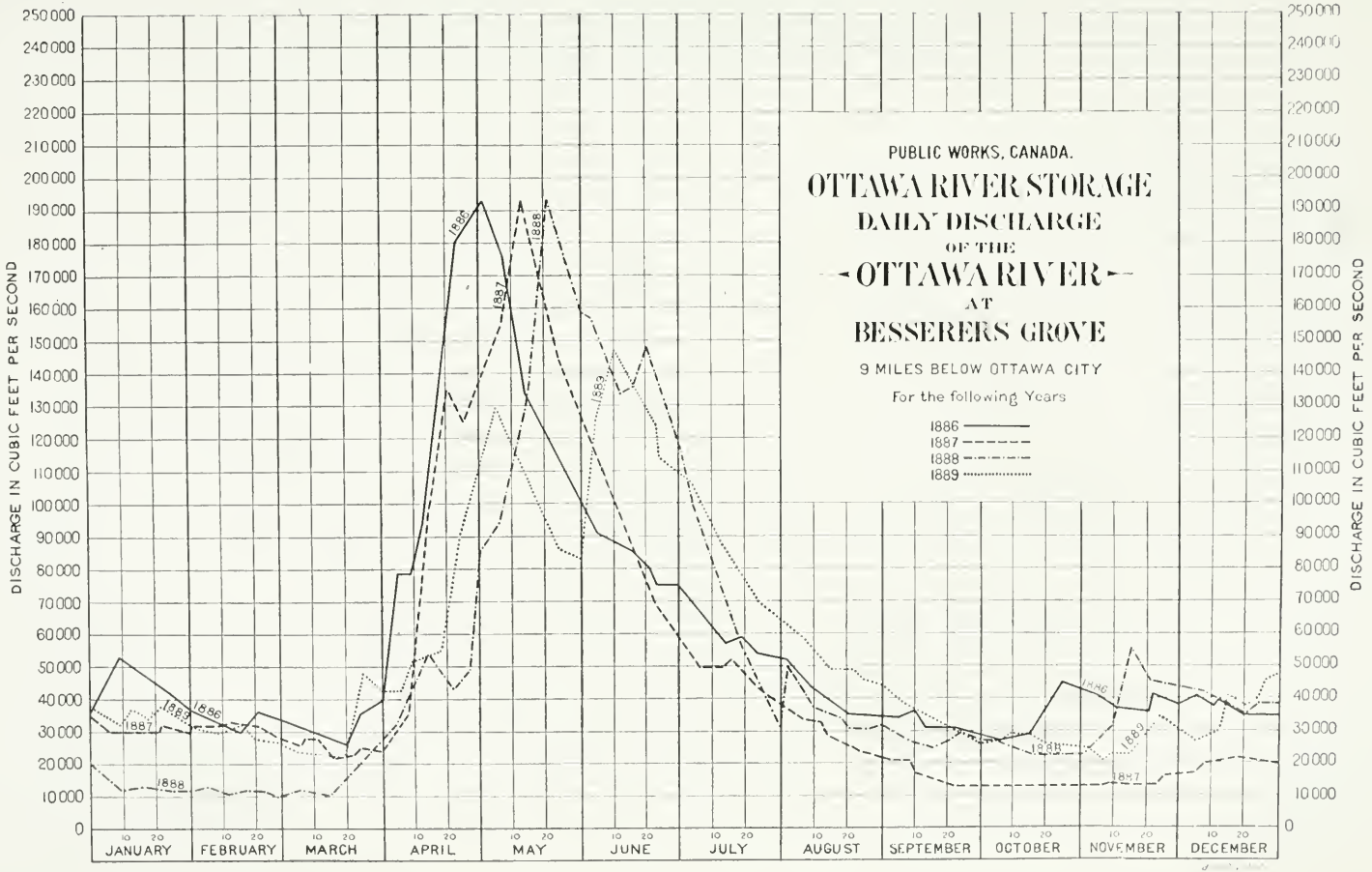
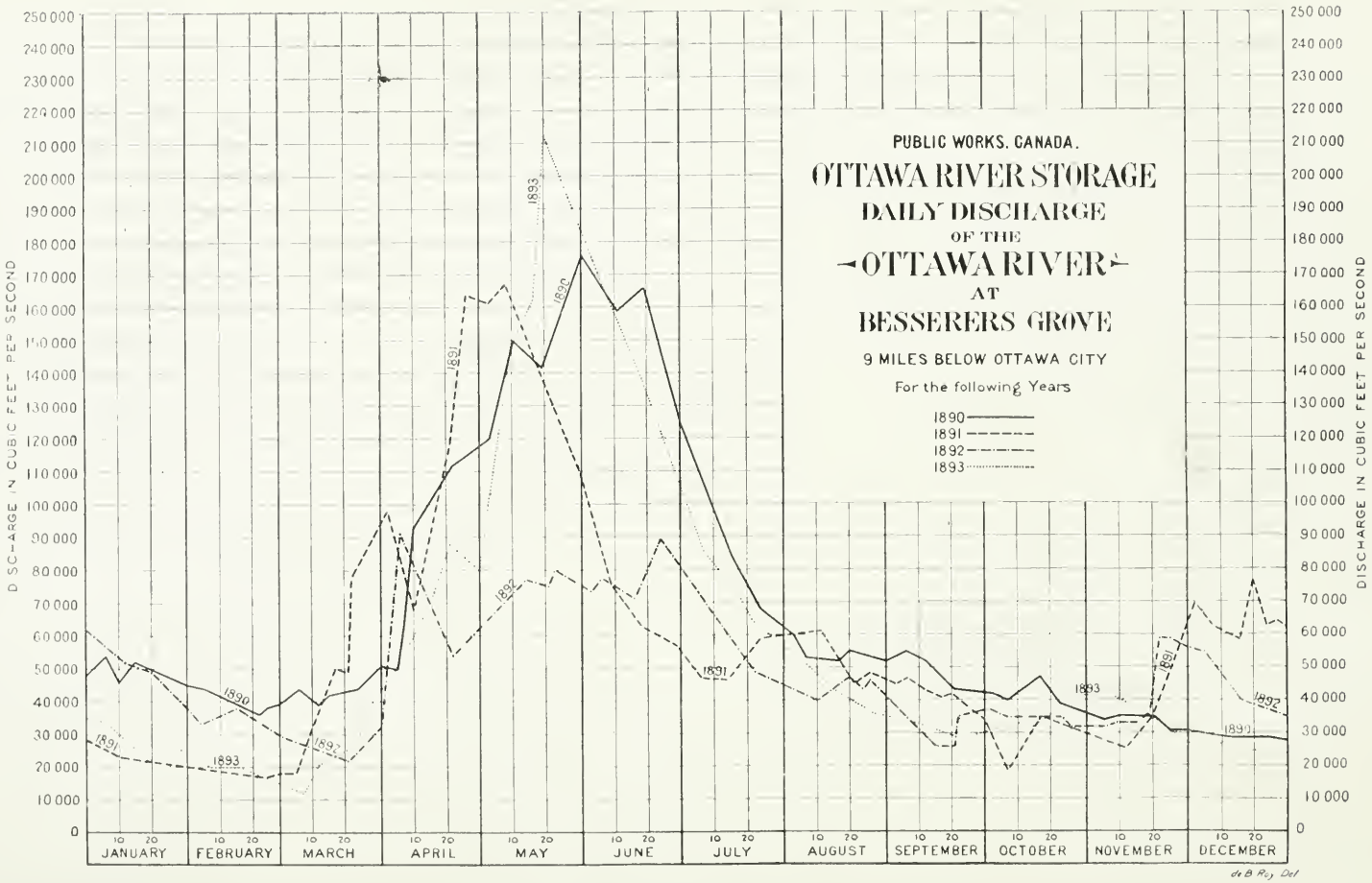
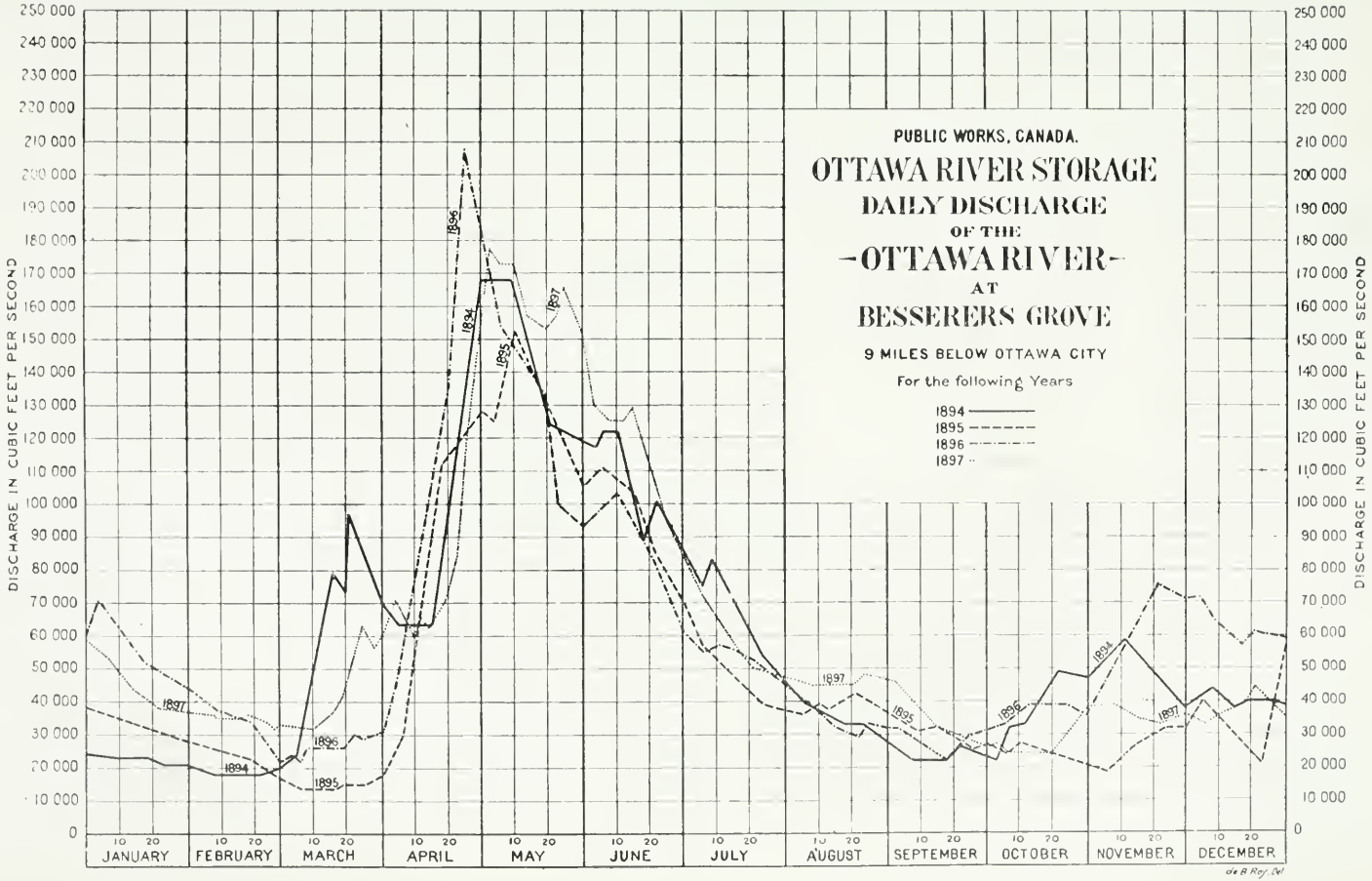
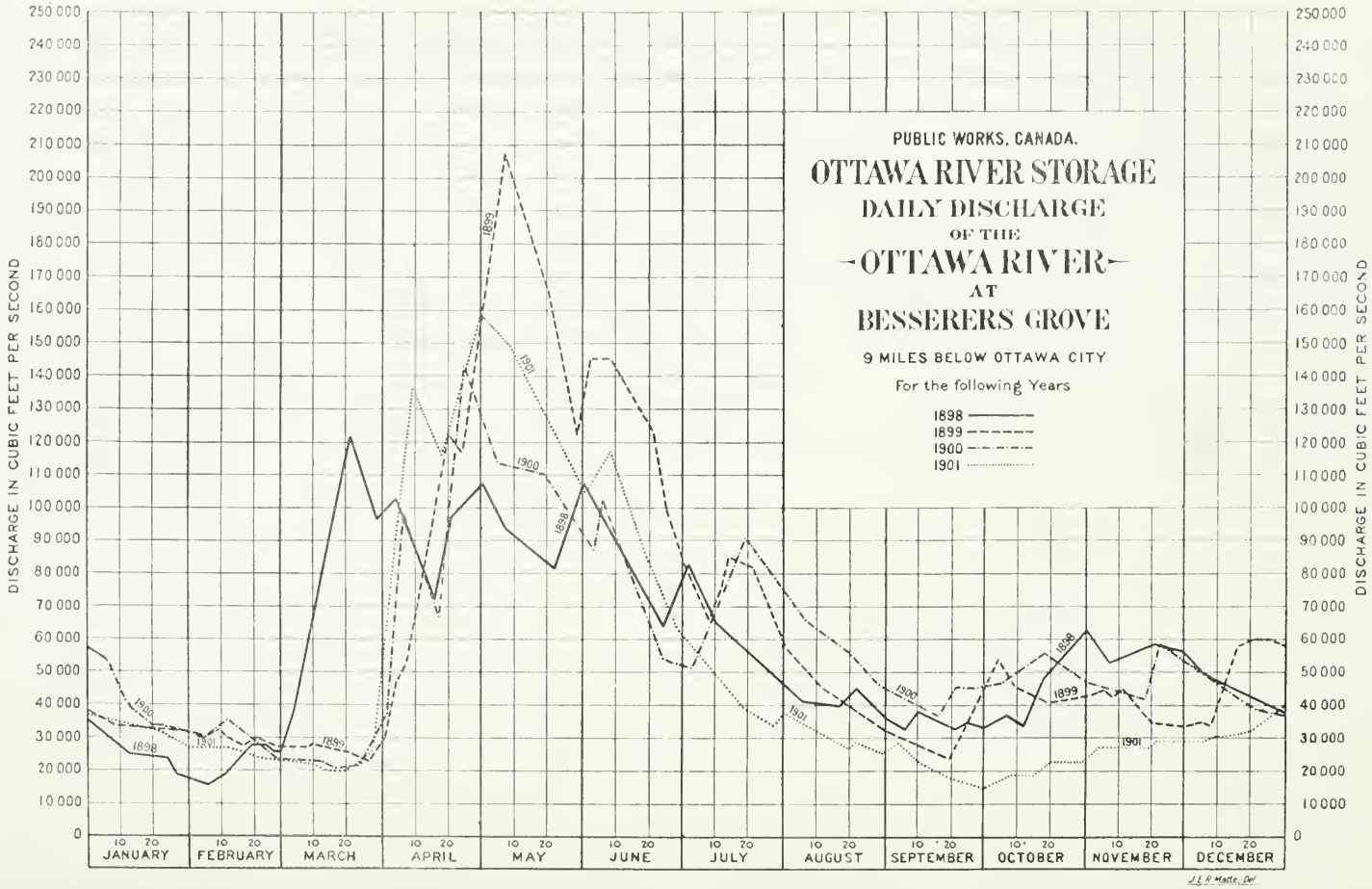
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

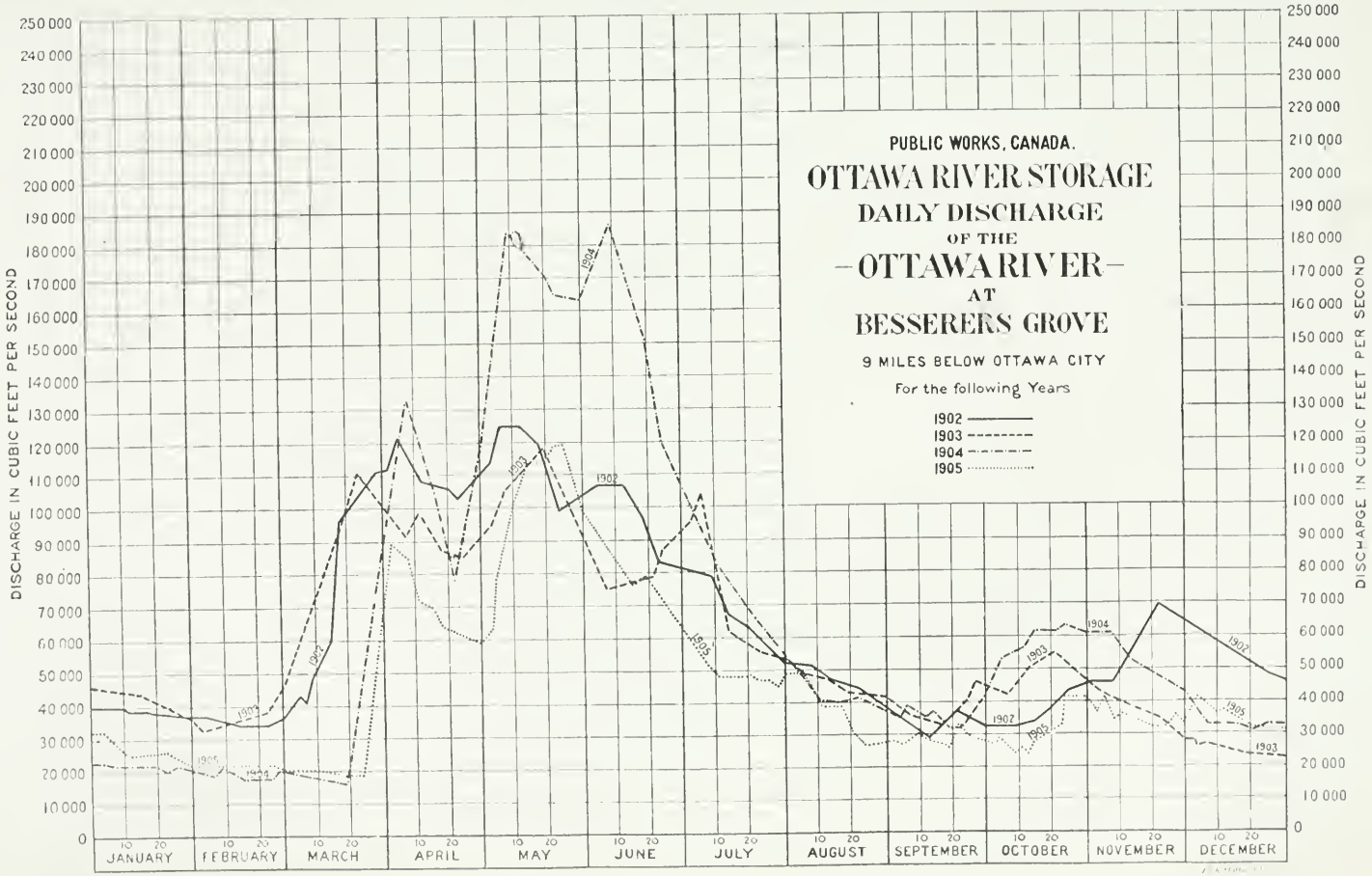

PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1882
1883
1884
1885
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

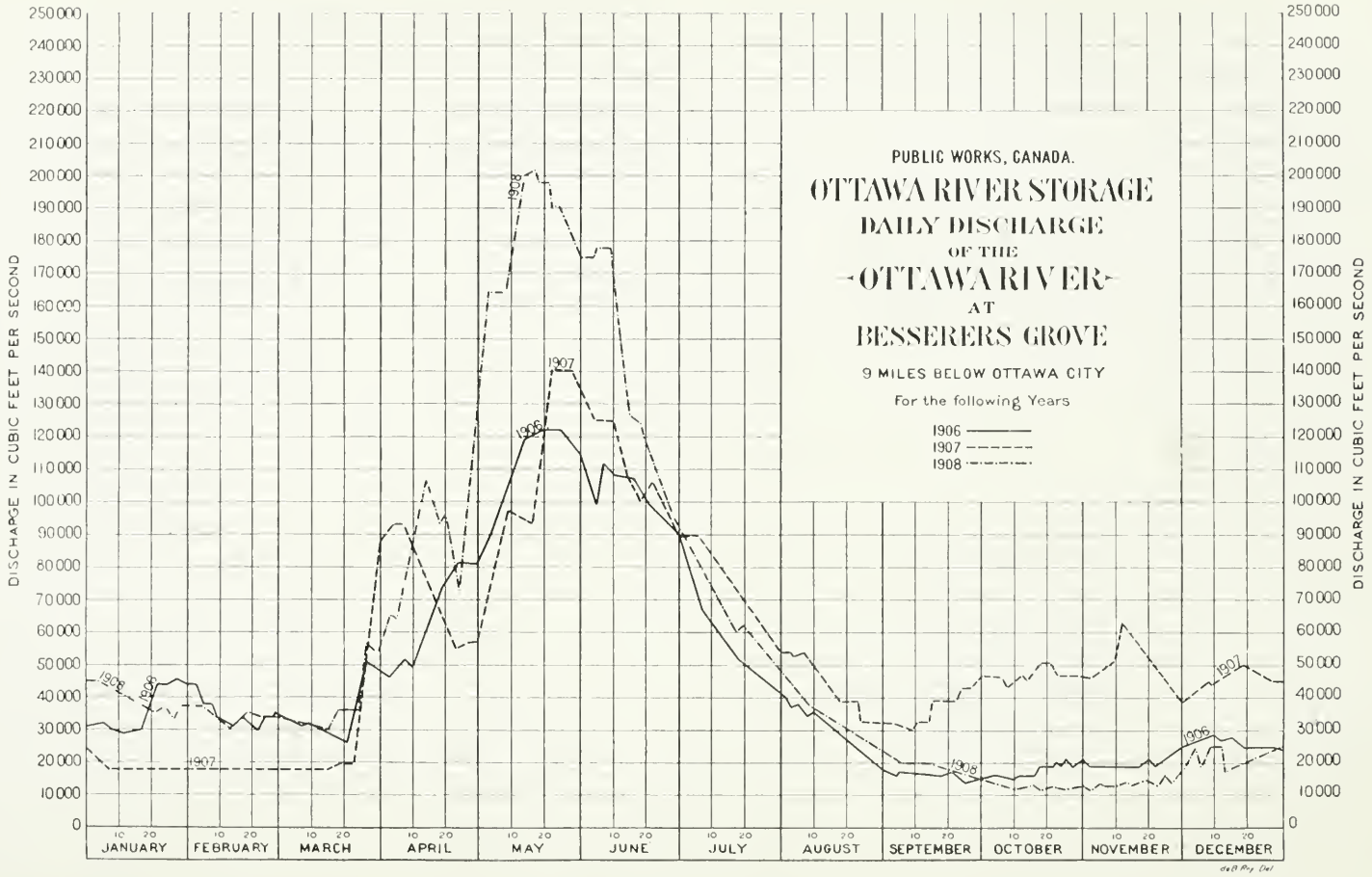

PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1886
1887
1888
1889
DISCHARGE IN CUBIC FEET PER SECOND
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

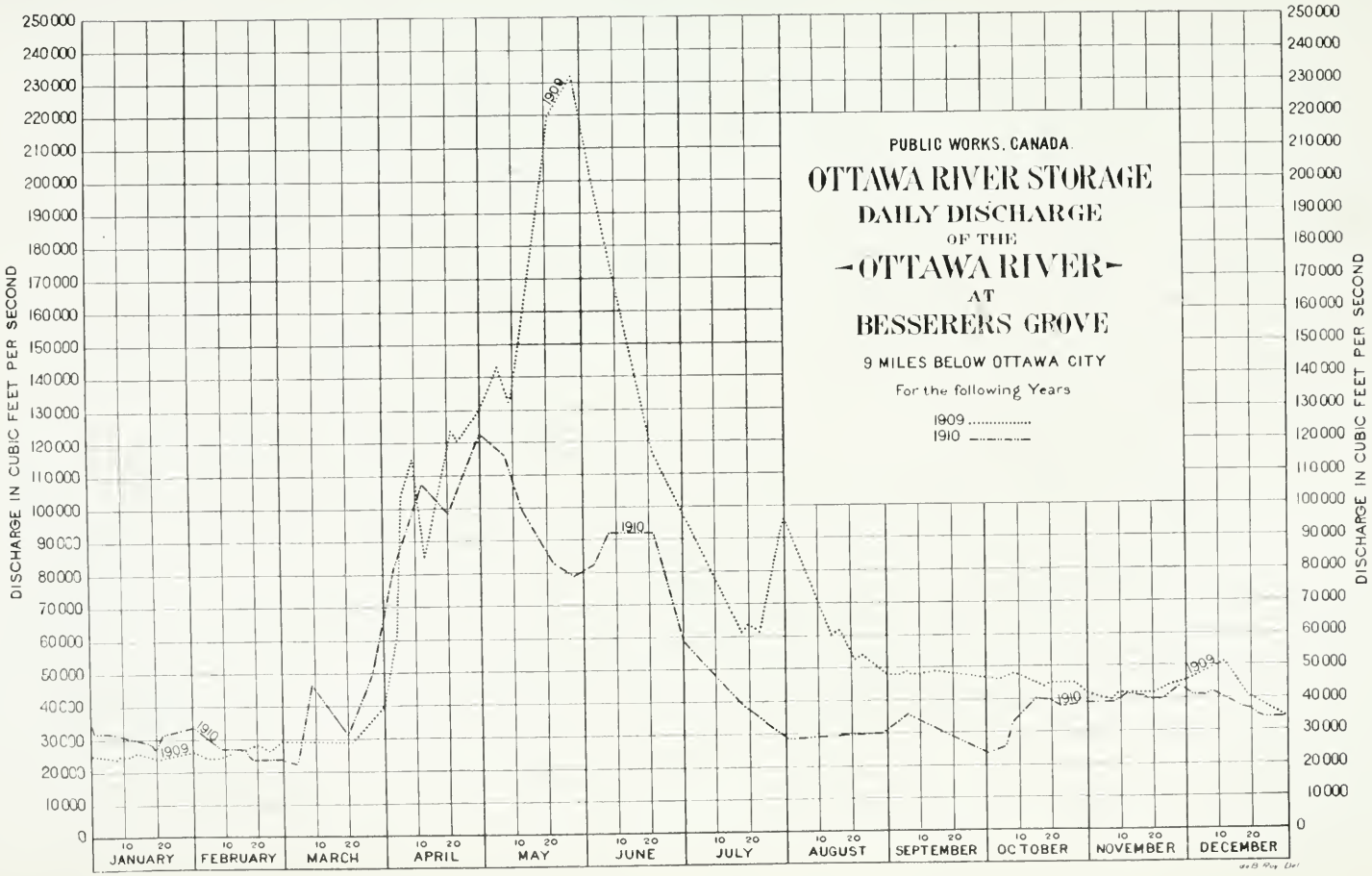

PUBLIC WORKS. CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1890
1891
1892
1893
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
10 20
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
1890
1891
1892
1893
de B Rey, Del


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
-OTTAWA RIVER-
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1894
1895
1896
1897
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
10 20

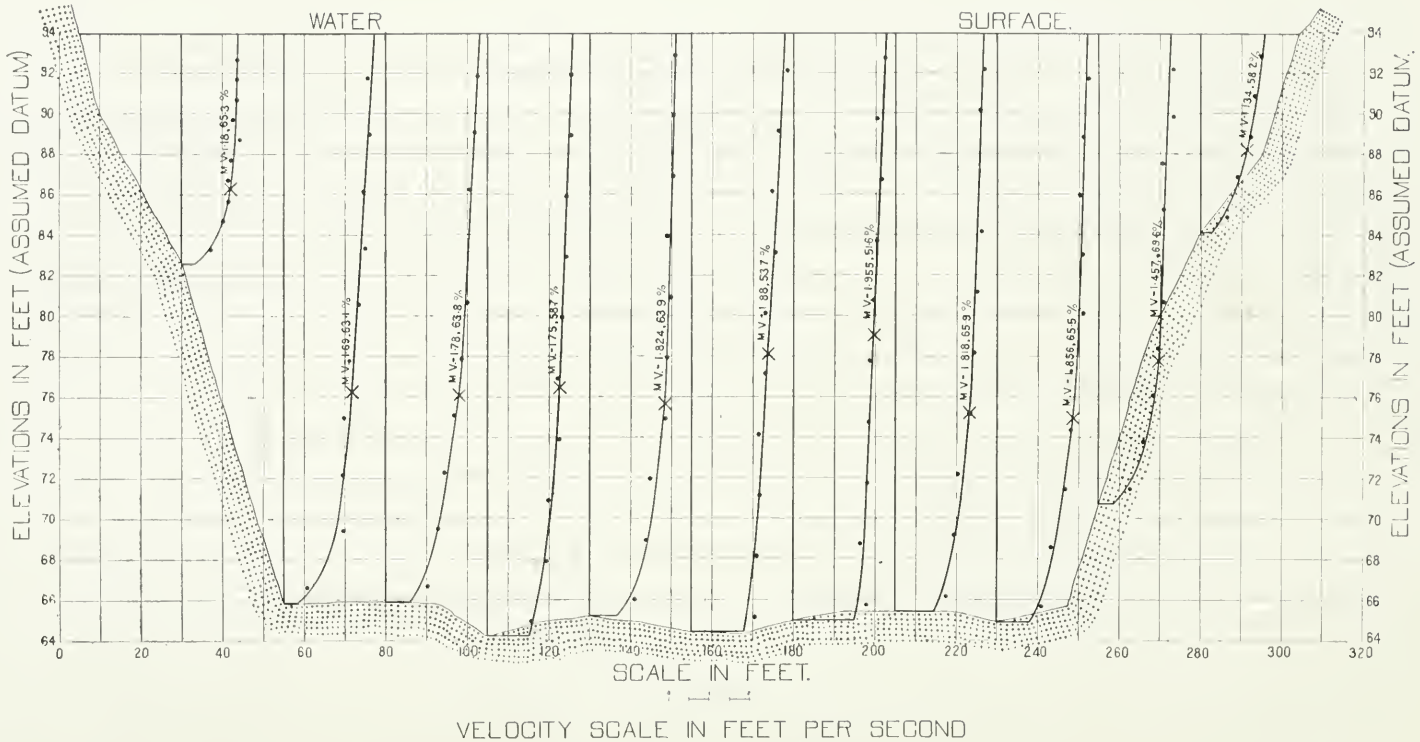

PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1898
1899
1900
1901
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
J. E. R. Matte, Del.

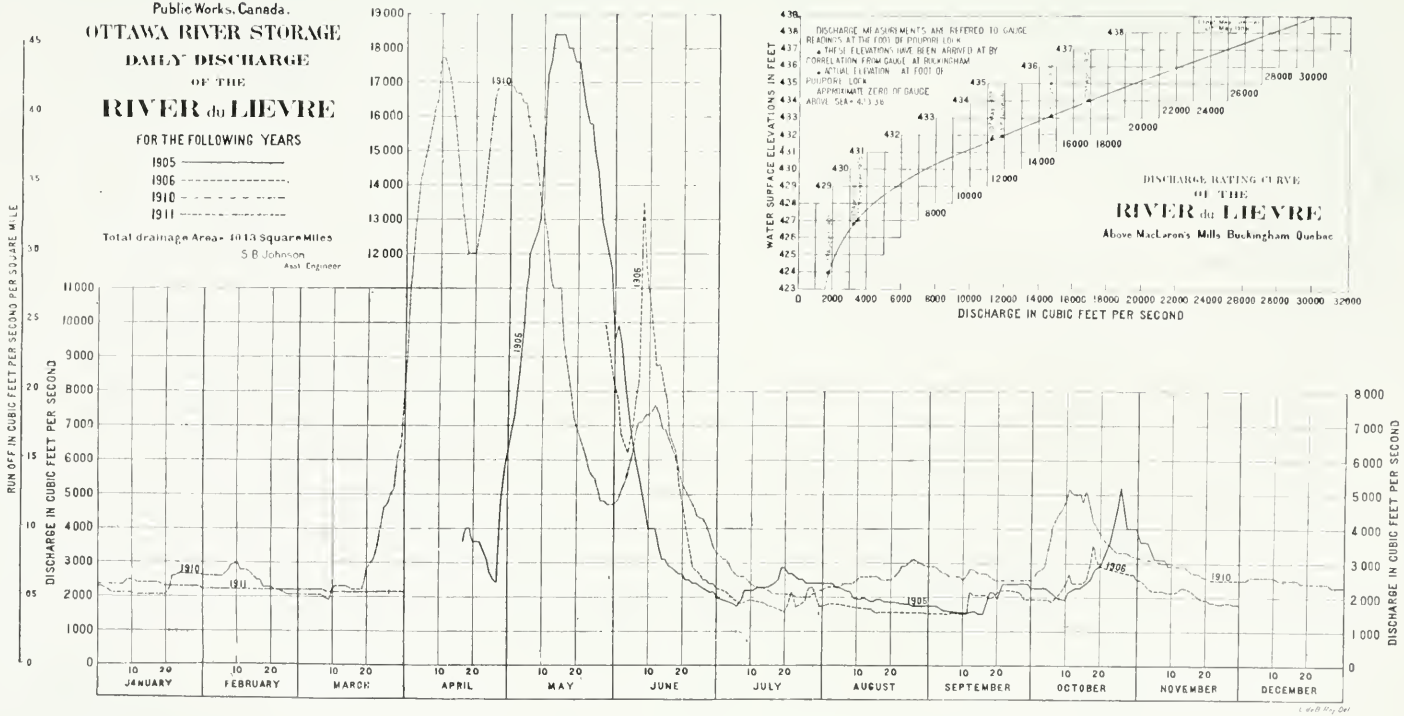

PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
—OTTAWA RIVER—
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1902
1903
1904
1905
DISCHARGE IN CUBIC FEET PER SECOND
250 000
240 000
230 000
220 000
210 000
200 000
190 000
180 000
170 000
160 000
150 000
140 000
130 000
120 000
110 000
100 000
90 000
80 000
70 000
60 000
50 000
40 000
30 000
20 000
10 000
0
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1906
1907
1908
DISCHARGE IN CUBIC FEET PER SECOND
250000
240000
230000
220000
210000
200000
190000
180000
170000
160000
150000
140000
130000
120000
110000
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
10 20
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
OTTAWA RIVER
AT
BESSERERS GROVE
9 MILES BELOW OTTAWA CITY
For the following Years
1909
1910
DISCHARGE IN CUBIC FEET PER SECOND
250000
240000
230000
220000
210000
200000
190000
180000
170000
160000
150000
140000
130000
120000
110000
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

DU LIEVRE RIVER METERING,
JUNE 3 1911.
DISCHARGE 11900 C. F. S. AVERAGE DEPTH OF M. V. BELOW W. S. 61.8%




Public Works, Canada.
OTTAWA RIVER STORAGE
DAILY DISCHARGE
OF THE
RIVER du LIEVRE
FOR THE FOLLOWING YEARS
1905
1906
1910
1911
Total drainage Area = 1013 Square Miles
S B Johnson
Asst Engineer
RUN OFF IN CUBIC FEET PER SECOND PER SQUARE MILE
DISCHARGE IN CUBIC FEET PER SECOND
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
DISCHARGE MEASUREMENTS ARE REFERED TO GAUGE READINGS AT THE FOOT OF POUPORE LOCK
THESE ELEVATIONS HAVE BEEN ARRIVED AT BY CORRELATION FROM GAUGE AT BUCKINGHAM
ACTUAL ELEVATION AT FOOT OF POUPORE LOCK
APPROXIMATE ZERO OF GAUGE ABOVE SEA = 423.38
WATER SURFACE ELEVATIONS IN FEET
DISCHARGE IN CUBIC FEET PER SECOND
DISCHARGE RATING CURVE
OF THE
RIVER du LIEVRE
Above MacLaren's Mills Buckingham Quebec

velocity and area curves (page 66), where several points on the area curve show a large area, but the mean velocities at the same time of metering are small.

The maximum fluctuation between high and low water is nearly 25 feet, representing a discharge ranging from 11,000 to 252,000 cubic feet per second or an average increase or decrease in flow of 9,600 cubic feet per second for every foot rise or fall on the gage at the foot of the Rideau locks at Ottawa.

Du Lievre River.

BY MR. A. A. ANDERSON.

Several metering sections have been used on this river, including one below Buckingham, one above, near the town, and one at Newton's farm about 3 miles above the town. These were all found unsatisfactory, however, and a new one was located on June 2nd, 1911, about 4½ miles above Buckingham. This spot was chosen because it was in the middle of a long straight stretch of the river, had high steep banks and an even clay bottom. The mean depth at date of metering was 23 feet below the surface. Floats were run to ascertain the general direction of the current, and the metering section laid out at right angles to this direction, when found. Permanent hubs were then sunk on this line on shore to ensure its being easily located for future measurements.

The metering here is done from a boat which is held in position by means of a rope stretched across the river, the width being only 300 feet. A cable is used to mark the distances. A permanent cable here is not feasible, as a steamer runs from Buckingham to High Falls every morning and back every afternoon. This is the only boat making regular trips on the river, and there is plenty of time between its passages to make a point measurement.

Gauge readings were taken on this river between April 17th and November 10th, 1905, and between May 14th and November 30th, 1906, on a gauge situated on a pier between the two dams at Buckingham. Since January 1st, 1910, they have been taken on the upper and lower sills of the Poupore lock. The pier and gauge at Buckingham have since been taken out by the ice. The zero of the gauge had however been tied in with a B. M. on shore and a relation was established between the water surfaces there and at Poupore. In this way the W. S. elevations at the lock could be determined for meterings made previous to 1910.

Further meterings are required both during summer and winter.

South Nation River.

This station has only been partially rated, 5 meterings having been made at flows varying between 176 and 17,700 cubic feet per second.

Owing to the washing out of the dam where the gage was placed the first 3 meterings cannot be used as the slope of the river was entirely changed.

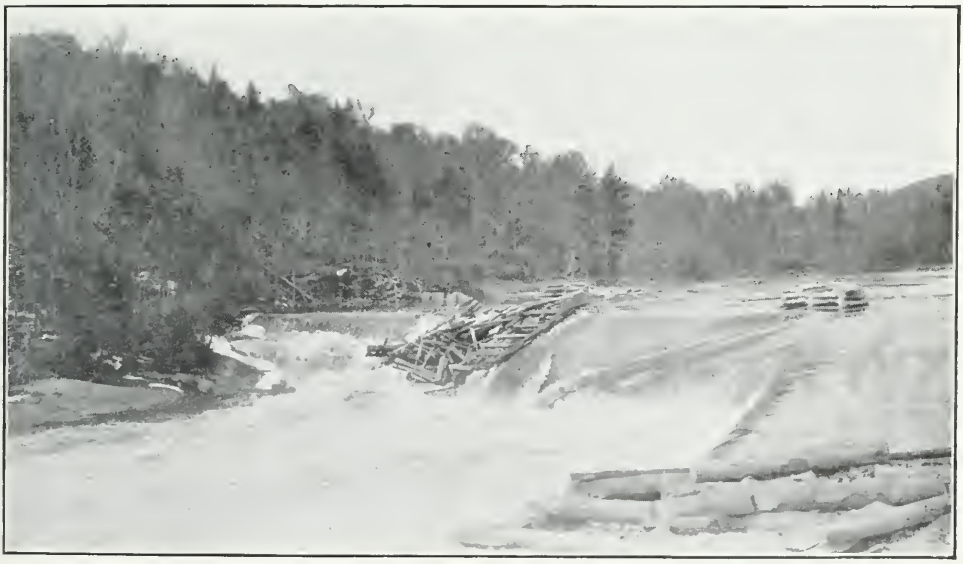
Readings of the elevation of the water surface are taken daily from the C. P. R. bridge at Plantagenet Springs, these are being related to the meterings as they are made.

North Nation River.

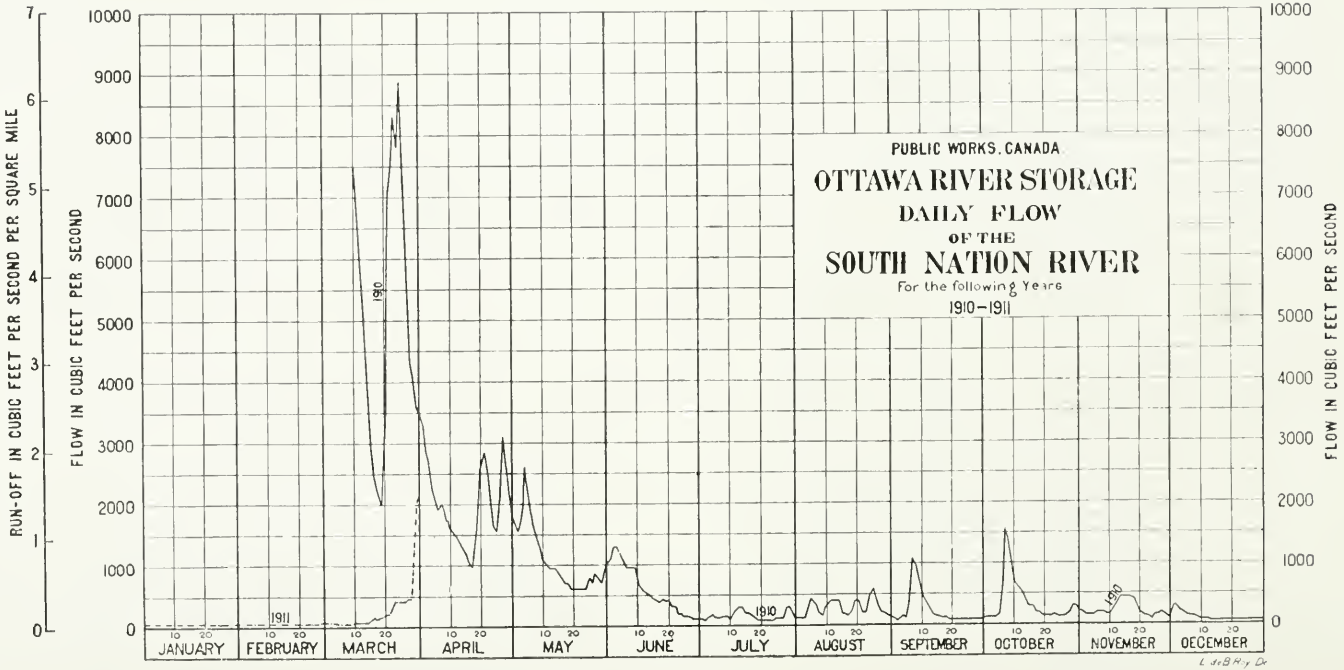
Four current meter measurements have been made of this river, and gage readings taken during the summer of 1905.

The river was not considered of enough importance to continue these observations, the drainage area being only 710 square miles.

No. 45.—Dufferin Falls on the River du Lievre, Quebec.

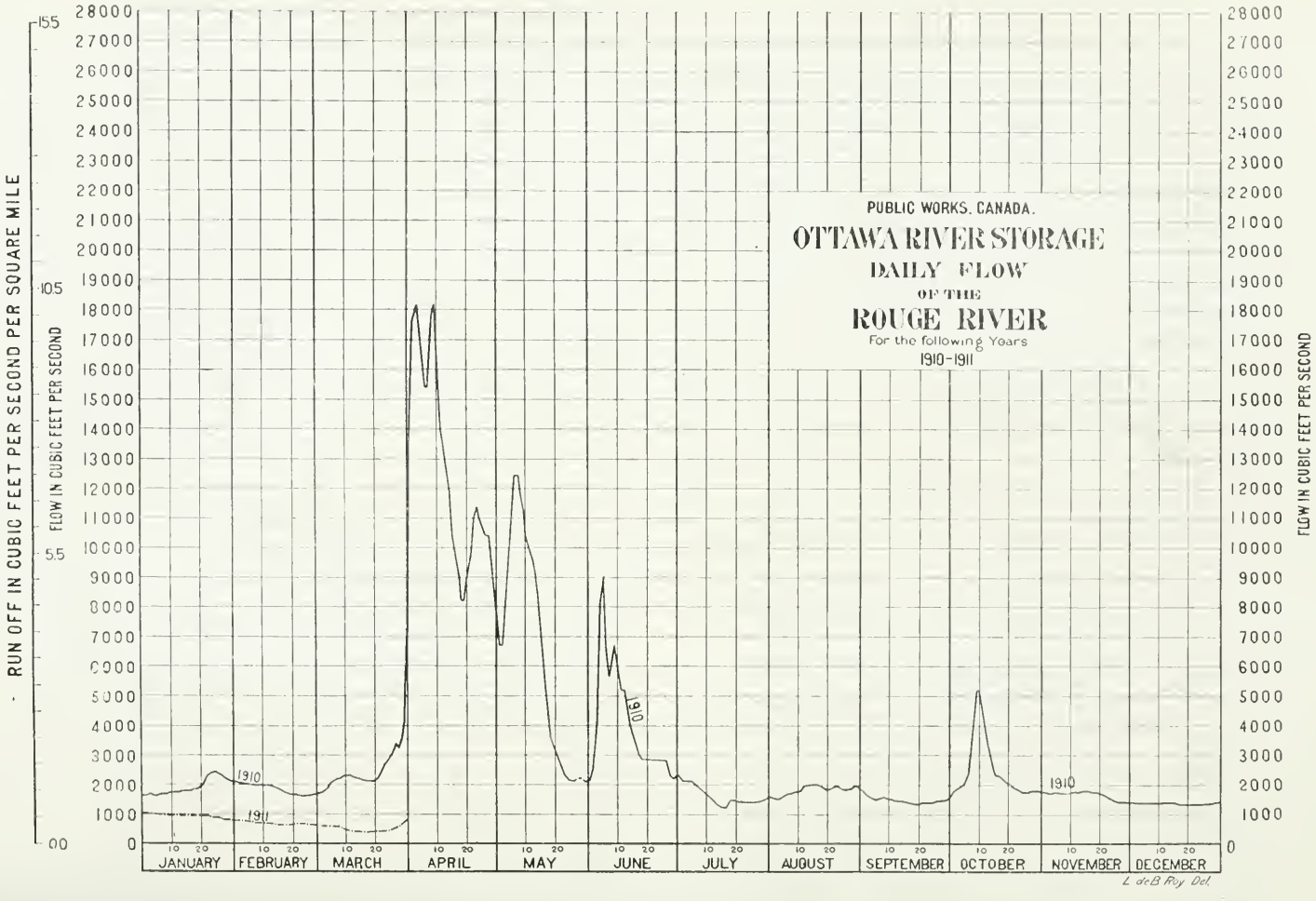


No. 46.—Table Falls on the Rouge River, Quebec. An electrical development of 1,500 horse power working under a head of 27 feet.


PUBLIC WORKS, CANADA
OTTAWA RIVER STORAGE
DAILY FLOW
OF THE
SOUTH NATION RIVER
For the following Years
1910–1911
RUN-OFF IN CUBIC FEET PER SECOND PER SQUARE MILE
FLOW IN CUBIC FEET PER SECOND
0
1
2
3
4
5
6
7
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
1910
1911
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

No. 47.—South Nation River C. P. R. bridge, utilized as a metering and gaging station for this part of the river.

No. 48.—Flood from the South Nation River, caused by the diversion of the river over the low flat farming country west, in the spring of 1910.


PUBLIC WORKS. CANADA.
OTTAWA RIVER STORAGE
DAILY FLOW
OF THE
ROUGE RIVER
For the following Years
1910-1911
RUN OFF IN CUBIC FEET PER SECOND PER SQUARE MILE
FLOW IN CUBIC FEET PER SECOND
15.5
10.5
5.5
0.0
28000
27000
26000
25000
24000
23000
22000
21000
20000
19000
18000
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1910
1911
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
L. deB. Roy Del.

No. 49.—Log jam on the Rouge River, near Calumet, Quebec, October, 1909.

No. 50.—Entrance to Grenville Canal, Ottawa River.

Rouge River.

Seven current meter measurements have been made of this river. One of these by Wm. Kennedy, C.E., of Montreal, 2 by the Riordon Paper Co., of Hawkesbury and 3 by Engineers from this office.

The gage was installed on the Rouge River above Ross' Electric Power at Table falls on the 14th April, 1905. It was read, with a few months' intermission during the winter, up to the end of December, 1906. Readings were again started in May, 1909, and have been continued to date.

The records may be considered fair of this river, but we have not made any winter meterings, therefore do not as yet know what effect the ice has on the gage readings.

No. 51.—Dam at St. Andrews, Quebec, on the North River.

North River.

Four current meter measurements were taken of this river at a section ¾ of a mile below the electric power plant at Chat's island.

Gage readings were carried on during the summer of 1905, but were then discontinued.

The river is metered principally because of its proximity to Montreal and being the largest stream flowing into the Ottawa below the Carillon metering station.

Ottawa River.

AT CARILLON AND ABOVE MONTREAL.

Current meter measurements have been carried on since 1905 at different sections above Montreal. The greater number of them were taken at the separate channels below the Lake of the Two Mountains, but latterly the metering has been done 2 miles above Carillon. This channel is an improvement on the separate

channels further down; although it is a little irregular on the north side. in the main channel the current is fairly even. When the total discharge at the mouth of the river is required there are only the additional flow from the North and Rigaud rivers to be added in. and about 300 square miles of drainage area outside of these rivers.

Winter meterings should be made at intervals during the frozen period at Carillon as well as nearly all the other stations on the Ottawa river and its tributaries. Prior to last winter rough estimates only could be made of the daily flow at most of the gaging stations below Timiskaming.

Rigaud River.

Only 2 current meter measurements have been made of this river. The flow ranges from over 2,000 cubic feet per second down to almost nothing, the maximum stage lasting about 3 days, and the minimum probably over a month, depending on the dryness of the season.

No. 52.—Foot of Carillon Canal, Ottawa River.

Discharge Measurements of the Ottawa, French and St. Lawrence Rivers and Tributaries

Quinze River

Drainage Area—12,100 sq. miles

Date	Water Surface Elevation above sea at Douglas Farm	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of M. V. below W. S.	Approx. W. S. elev. above sea, below Maple rapids	Locality and Remarks
	Quinze lake	West, East Channel							
November 2, 1908	.....	.....	.....	.....	.....	2,640	.....	.....	J. B. McRae
June 14, 1909	859.30	460 380	18.8	16,558	2.80	57,170	.....	826.97	At mouth
September 1, 1909	856.00	453 361	12.2	8,239	1.76	14,460	.....	821.95	"
December 18, 1909	855.75	440 325	....	.....	.....	10,220	.....	821.58	"
March 5, 1910	854.35	430 ...	17.8	6,246	0.77	4,790	15.1–745%	819.45	" , ice
May 17–18, 1910	857.85	469 373	15.8	12,190	1.97	24,800	64.1%	824.77	"
June 28, 1910	856.45	453 356	13.5	9,745	1.45	14,130	64.0%	822.65	"
March 16, 1911	854.05	410	5.3	1,978	1.666	3,290	.....	819.02	At head

White River

Drainage Area—1720 sq. miles

June 17, 1909	.....	190	....	.....	.....	2,070	.....	.....	Highway bridge Tomstown

Montreal River.

Drainage Area—2,800 sq. miles

	At Latchford								
June 16, 1909	898.9	308	6.7	2,030	2.96	6,000	.....	.....	Below Latchford
July 16, 1909	896.2	200	7.05	973	1.85	1,800	.....	.....	Below Latchford
September 3, 1909	893.38	155	10.7	1,460	1.09	1,595	.....	.....	1 mile below Latchford
May 14, 1910	898.18	300	7.0	2,060	2.95	5,642	68.3%	.....	1½ miles below Latchford
June 9, 1910	898.65	188	8.6	1,482	3.94	6,000	75.1%	.....	1½ miles above Gillies
June 30, 1910	896.43	188	8.0	1,323	1.89	2,500	76.2%	.....	1½ miles above Gillies

KIPAWA RIVER
Drainage Area—2,130 sq. miles

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of M. V. below W. S.	Remarks
June 4, 1909	873.60 approx	242	14.2	3,402	3.07	10,460	.....	50′ above dam at Head
July 20, 1909	870.80 approx	230	10.3	2.366	1.95	4,610	.....	110′ " " "
August 27, 1909	870.55	226	9.0	2,014	2.13	4,290	.....	60′ " " "
May 23, 1910	870.81	270	6.2	1.640	2.68	4,460	67.3%	2000′ below " "
July 5, 1910	867.10	67	2.2	147	4.56	670	.....	80′ " " "

OTTAWA RIVER—TIMISKAMING, QUE.
Drainage Area—18,100 sq. miles

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of M. V. below W. S.	Remarks
May 7, 1909	573.90	550	32.2	14,479	2.21	31,960	.....	Above Timiskaming, Que.
June 2, 1909	581.25	568	34.8	18,214	5.61	102,100	.....	" " "
July 12, 1909	574.80	554	32.8	13.480	2.64	34,200	.....	" " "
August 25, 1909	573.05	534	....	.....	.....	25,000	.....	" " "
December 21, 1909	571.73	428	30.3	11,912	1.52	18,140	.....	" " "
March 2, 1910	569.40	430	26.9	9.847	0.77	7,560	69.3%	" " "
May 12, 1910	576.50	542	33.0	15,462	2.98	46,150	70.0%	" " "
May 26, 1910	575.90	546	32.6	14,980	2.87	43,110	66.2%	" " "
July 2, 1910	573.40	526	32.5	12,211	1.87	22,840	66.0%	" " "
July 11, 1910	572.60	516	29.5	12 170	1 67	20,270		" " "

GORDON CREEK

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of M. V. below W. S.	Remarks
June 2, 1909	.....	137.5	....	.....	.....	2,735	.....	Above Lumsden Mills H.
July 13, 1909	772.50	137.5	6.2	746	1.40	1,050	.....	" " Bridge
August 24, 1909	772.10	137.5	6.9	798	0.92	735	.....	" " "
March 3, 1910	772.75	137.0	6.3	732	1.39	1,020	.....	" " "
May 13, 1910	772.90	137.0	6.3	773	2.36	1,830	70%	" " "
May 28, 1910	.....	137.0	6.8	824	2.16	1,780	55%	" " "
July 2, 1910	773.45	137.0	6.3	773	2.70	2,080	59.6%	" " "
July 11, 1910	773.25	137.0	6.6	803	2.85	2,140	60.0%	" " "

LONG SAULT RAPIDS—OTTAWA RIVER
Drainage Area—18,060 sq. miles

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
March, 1901	Low water					6,500		Est'd C. E. Gauvin, Q. Govt.

LES ERABLES RAPIDS—OTTAWA RIVER
Drainage Area—18,530 sq. miles

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
March, 1901	Low water					7,700		Est'd C. E. Gauvin, Q. Govt

OTTAWA RIVER 6 miles above Mattawa
Drainage Area—18,700 sq. miles

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
March, 1901						7,800		Est'd C. E. Gauvin, Q. Govt.

LAKE NASBONSING OUTFLOW, MENARD'S BRIDGE
Drainage Area—71.5 sq. miles

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
March 3, 1905	679.57					19.45		Gaging through 3 ft. of ice
April 6, 1905	679.29					148.00		
" 6, 1905	679.29					146.00		
" 7, 1905	679.21					140.00		
" 7, 1905	679.21					143.00		
" 12, 1905	679.24					129.00		Dammed by logs
" 12, 1905	679.24					128.00		Dammed by logs
" 19, 1905	679.10					116.00		
" 19, 1905	679.10					99.00		
" 19, 1905	679.10					110.00		
" 19, 1905	679.10					116.00		
" 26, 1905	679.00					99.00		
" 26, 1905	679.00					96.00		
" 29, 1905	679.03					109.00		
" 29, 1905	679.03					116.00		

LAKE NASBONSING OUTFLOW, MENARD'S BRIDGE—Continued

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
May 10, 1905	679.35					150.00		Red Rapids
" 18, 1905	679.52					169.00		
" 18, 1905	679.52					169.00		
" 24, 1905	679.12					114.00		
" 24, 1905	679.12					118.00		
" 29, 1905	681.52					598.00		Dam open
" 29, 1905	681.62					612.00		"
" 29, 1905	681.92					718.00		"
" 29, 1905	681.82					703.00		"
" 31, 1905	678.82					79.00		Dam closed
" 31, 1905	678.82					77.00		"
" 31, 1905	679.82					327.00		Dam open
" 31, 1905	680.32					408.00		"
" 31, 1905	680.72					492.00		"
June 14, 1905	678.97					151.00		Red Rapids
" 14, 1905						95.00		
" 14, 1905	678.97					111.00		

TURTLE LAKE
Drainage Area from Whitefish Bay—78 sq. miles

March 8, 1905	641.13					42.0		Outlet of Whitefish Bay
" 30, 1905	641.28					70.0		" "
" 30, 1905	641.28					68.0		" "
April 6, 1905	641.56					113.0		" "
" 6, 1905	641.56					113.0		" "
" 7, 1905	641.43					105.0		" "
" 7, 1905	641.43					102.0		" "
" 18, 1905	642.15					91.0		Due to logs jamming in creek
May 17, 1905	643.51					335.0		
" 17, 1905	643.51					444.0		Logs below section
" 24, 1905	642.21					187.0		Logs cleared
	642.21					187.0		

Lake Talon

Drainage Area—342 sq. miles

Date	Water Surface Elevation above sea below Pimisi Bay	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
Feb'y 25, 1905	583.97					255.0		Section not suitable
" 27, 1905	583.94					245.0		" " "
" 28, 1905	583.92					259.0		" " "
March 11, 1905	584.10					200.0		Talon chute narrows
" 14, 1905	584.08					197.0		Below gauge below Pimisi
" 14, 1905	584.08					200.0		" " "
" 27, 1905	584.46					337.0		Talon chute narrows
" 27, 1905	584.46					357.0		" " "
" 28, 1905	584.49					304.0		" " "
April 5, 1905	585.51					680.0		" " "
" 5, 1905	585.51					658.0		" " "
" 10, 1905	585.66					878.0		" " "
" 10, 1905	585.66					721.0		" " "
" 10, 1905	585.66					859.0		" " "
" 11, 1905	585.69					875.0		" " "
" 11, 1905	585.69					856.0		" " "
" 17, 1905	585.76					918.0		" " "
" 17, 1905	585.76					901.0		" " "
" 25, 1905	587.20					253.0		Talon dam closed 10 a.m.
" 25, 1905	587.20					254.0		" chute narrows Apr. 19
" 26, 1905	584.22					202.0		" " narrows
" 26, 1905	584.22					220.0		" " "
May 1, 1905	584.78					427.0		" " "
" 1, 1905	584.78					468.0		" " "
" 2, 1905	584.81					496.0		" " "
" 4, 1905	585.77					601.0		
" 4, 1905	585.77					613.0		
" 6, 1905	585.23					626.0		
" 6, 1905	585.23					592.0		
" 9, 1905	585.52					736.0		
" 9, 1905	585.52					828.0		
" 13, 1905	585.41					751.0		

LAKE TALON—Continued

Date	Water Surface Elevation above sea below Pimisi Bay	Width in feet	Mean depth in feet	Area in sq. feet.	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
May 13, 1905	585.41					670.0		Talon chute narrows
" 16, 1905	585.43					704.0		" " "
" 16, 1905	585.43					697.0		" " "
" 22, 1905	585.81					849.0		" " "
" 22, 1905	585.81					902.0		" " "
June 6, 1905	586.11					918.0		Dammed by logs
" 10, 1905	585.59					312.0		Taken through logs; unreliable
" 12, 1905	585.68					220.0		Dammed by logs
" 16, 1905	586.23					1150.0		Talon chute narrows
" 16, 1905	586.23					1099.0		" " "
" 23, 1905	586.21					1186.0		" " "
" 23, 1905	586.21					1098.0		" " "
July 13, 1905	583.41					65.0		150 ft. below gage below Pimisi
Aug. 25, 1905	584.29					135.0		Pimisi dam opened; Talon dam closed
" 26, 1905	584.11					173.0		Pimisi dam open, 1 gate
July 17, 1906	584.19					222.0		Talon dam closed

HEADWATERS OF THE AMABLE DU FOND RIVER

INDIAN RIVER FLOWING INTO TEA LAKE

Date	Water Surface Elevation above sea below Pimisi Bay	Width in feet	Mean depth in feet	Area in sq. feet.	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. s.	Locality and Remarks
January 10, 1906	.....	8.5	0.67	5.7	2.78	15.9	.....	
OUTLET OF TEA LAKE INTO MANITOU LAKE								
January 9, 1906	.....	22	0.83	18.3	2.35	43.1	.....	
OUTLET OF THREE MILE LAKE INTO MANITOU LAKE								
January 11, 1906	.....	20	0.96	19.3	1.76	34.1	.....	
OUTLET OF MANITOU LAKE INTO AMABLE DU FOND RIVER								
January 8, 1906	.....	14	1.22	17.1	3.31	56.7	.....	
OUTLET OF MINK LAKE INTO AMABLE DU FOND RIVER								
January 5, 1906	.....	10	1.47	14.7	1.44	21.1	.....	

AMABLE DU FOND RIVER (flowing into the Mattawa)

Drainage Area—433 sq. miles

Date		Water Surface Elevation above sea at Booth's Farm	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
May	12, 1905						627		1½ miles below Eau Claire
"	12, 1905						597		" " " " "
"	12, 1905						300		Est'm Patois River
June	24, 1905						456		Dams at Booth's farms closed June 16.
"	29, 1905						421		" " " " " "
July	14, 1905	753.90					635		Ab. Chute-de-Bully dam at Kioshkoqui opened 3 logs
August	29, 1905	751.82					165		Above Chute-de-Bully
September	14, 1905	752.00					218		" " "
"	28, 1905	751.62					195		" " "
December	8, 1905	751.82					287		Booth's farm taken at gage
"	8, 1905	751.82					281		200 ft. above gage at Cameron's
"	8, 1905	751.82					269		½ mille above gage
"	9, 1905	751.72					237		at Kioshkoqui
"	9, 1905	751.72					253		at Kioshkoqui small side channel
"	28, 1905	752.02					247		at Cameron's
March	2, 1906	752.32					184		240 ft. above Cameron's 6-10 method, ice 9"
"	2, 1906	752.32					159		240 ft. above Cameron's, point method
"	27, 1906	752.82					208		
April	27, 1906	753.02					457		
April	27, 1906	753.59					553		
"	27, 1906	753.20					485		
"	28, 1906	752.64					368		
"	28, 1906	752.62					376		
May	1, 1906	753.57					542		
"	1, 1906	753.56					603		
"	1, 1906	753.96					624		
"	1, 1906	754.36					724		
"	1, 1906	754.56					809		
"	1, 1906	754.22					809		

AMABLE DU FOND RIVER (flowing into the Mattawa)—Continued

Date	Water Surface Elevation above sea at Booth's Farm	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
May 2, 1906	753.72					483		
" 2, 1906	753.99					532		Logs
" 3, 1906	756.35					1071		"
" 3, 1906	756.47					1019		"
" 3, 1906	756.54					1108		"
" 3, 1906	756.51					966		"
" 4, 1906	756.38					967		"
" 5, 1906	756.43					961		"
" 8, 1906	755.36					977		"
" 8, 1906	755.13					954		"
" 9, 1906	755.17					870		"
" 9, 1906	754.73					850		"
" 9, 1906	754.68					846		"
" 10, 1906	754.67					864		
" 10, 1906	754.71					933		
" 11, 1906	754.65					806		
" 12, 1906	754.61					865		
" 17, 1906	754.71					909		
" 18, 1906	754.79					835		
" 19, 1906	754.57					812		
" 19, 1906	754.76					860		
" 21, 1906	754.95					931		
" 21, 1906	754.89					860		
" 22, 1906	754.98					1003		
" 22, 1906	754.99					964		
" 22, 1906	754.90					938		
" 22, 1906	754.89					965		
" 23, 1906	754.72					949		
" 23, 1906	754.81					980		
" 23, 1906	754.98					1008		
" 23, 1906	755.13					1016		
" 24, 1906	755.07					1011		
" 24, 1906	755.49					1064		

AMABLE DU FOND RIVER (flowing into the Mattawa)—Continued

Date	Water Surface Elevation above sea at Booth's Farm	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
May 25, 1906	755.12					984		
" 25, 1906	754.96					917		
" 25, 1906	754.85					883		
" 25, 1906	754.82					908		
" 26, 1906	755.42					1087		
" 29, 1906	755.32					1127		
" 29, 1906	755.32					1123		
" 29, 1906	755.25					1126		
" 29, 1906	755.25					1125		
" 30, 1906	755.18					1101		
" 31, 1906	755.22					1091		6-10 measurement
" 31, 1906	755.22					1126		point "
" 31, 1906	755.22					1087		
" 31, 1906	755.14					1132		
" 31, 1906	755.14					1134		
June 1, 1906	755.03					1086		
" 1, 1906	755.02					992		
" 1, 1906	755.02					1067		
" 1, 1906	754.99					1069		point measurement
" 1, 1906	754.99					1067		6-10 "
" 1, 1906	754.99					1086		
" 2, 1906	754.84					1008		
" 4, 1906	755.21					1124		20 ft. below gage at Cameron's
" 4, 1906	755.22					1210		½ mile below Brennan's Rapids
" 4, 1906	755.22					1122		
" 4, 1906	755.22					1131		
" 5, 1906	755.22					1208		
" 5, 1906	755.22					1197		20 ft. below gage at Cameron's
" 5, 1906	755.22					1167		" " " " "
" 6, 1906	755.22					1057		" " " " "
" 6, 1906	755.22					1130		½ mile above Brennan's Rapids
" 6, 1906	755.22					1124		point method
" 6, 1906	755.22					1140		6-10 "
" 6, 1906	755.19					1174		

AMABLE DU FOND RIVER (flowing into the Mattawa)—Continued

Date	Water Surface Elevation above sea at Booth's Farm	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
June 7, 1906	755.02					1076		
" 7, 1906	755.02					1059		
" 7, 1906	755.02					1001		
" 7, 1906	755.01					1050		
" 7, 1906	754.93					1047		
" 8, 1906	755.21					1262		
" 18, 1906	751.72					285		
" 18, 1906	751.72					286		
" 21, 1906	755.19					1150		
" 21, 1906	755.09					1105		
" 22, 1906	754.84					1008		
" 22, 1906	754.77					1006		
" 23, 1906	754.60					1019		
" 25, 1906	751.83					301		
" 25, 1906	751.82					291		
" 27, 1906	754.25					878		
" 27, 1906	754.22					869		
" 28, 1906	754.17					830		
" 29, 1906	753.96					775		
" 29, 1906	753.92					780		
" 29, 1906	753.90					765		
" 30, 1906	753.79					739		
July 3, 1906	751.72					266		
" 3, 1906	752.41					445		
" 3, 1906	752.70					504		
" 3, 1906	753.09					584		
" 3, 1906	753.20					622		
July 4, 1906	753.77					729		
" 5, 1906	753.59					692		
" 5, 1906	753.49					604		
" 6, 1906	753.39					556		
" 13, 1906	750.84					179		
" 14, 1906	750.84					176		

MATTAWA RIVER AT MATTAWA

Drainage Area—880 sq. miles

Date	Water Surface Elevation below Pimisi Bay	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
April 14, 1905	585.72	.....	.....	.....	.....	2005	.....	
May 30, 1905	585.95	.....	.....	.....	.....	2385	.....	
August 28, 1905	584.44	.....	.....	.....	.....	383	.....	Talon dam closed Aug. 26
December 5, 1905	584.58	.....	.....	.....	.....	419	.....	Pimisi gage mean of readings of two days before gaging taken

Discharge Measurements French River

Drainage Area—6,000 sq. miles

Drainage Area at Outlets of Lake Nipissing—4,077 sq. miles

Date	Water Surface Elevation at North Bay	Water Surface Elevations at French River	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
September 15, 1905	638.70					3760		Big Chaudiere
" 16, 1905						240		Little Chaudiere E. Branch
" 16, 1905						1005		Little Chaudiere W. Branch
						5005		Total flow
October 19, 1905	638.35					3503		Big Chaudiere
" 20, 1905						204		Little Chaudiere E. Branch
" 20, 1905						866		Little Chaudiere W. Branch
August 9, 1906						4573		Total flow
" 9, 1906	640.66					4069		Big Chaudiere
" 10, 1906						518		Little Chaudiere E. Branch
" 10, 1906						2060		Little Chaudiere W. Branch
						6647		Total (strong wind 9–15)
" 18, 1906						4648		Bad River East side
" 19, 1906						965		Bad River Centre Channel
" 19, 1906						246		Bad River West Channel
" 20, 1906						403		Bad River West Channel
" 21, 1906						6262		Total flow Bad River
						2032		Main channel ¾ mile above tramway
						8294		Total flow French River
May 30, 1907	641.85	614.88				4433		Big Chaudiere S. E. Wind.
" 31, 1907						607		Little Chaudiere E. Branch
" 31, 1907						2612		Little Chaudiere W. Branch
						7652		Total.

DISCHARGE MEASUREMENTS FRENCH RIVER.—Continued

Date	Water Surface Elevation at North Bay	Water Surface Elevations at French River	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
June 7, 1907						3264		Bad River Channel (1)
" 6, 1907						8580		" " " (2)
" 7, 1907						1555		" " " (3)
" 7, 1907						2065		" " " (4)
						15464		Total flow Bad River
" 8, 1907						4681		Main Channel ¾ mile above tramway.
" 8, 1907						513		Bass Channel
" 8, 1907						138		East Outlet East Channel
" 8, 1907						354		West Outlet East Channel
						21150		Total flow French River
" 21, 1907	642.72	642.74				5133		Big Chaudiere
" 21, 1907						869		Little Chaudiere East Branch
" 21, 1907						3483		Little Chaudiere West Branch
						9485		Total
September 6, 1907	640.29	640.30				3226		Big Chaudiere
" 7, 1907						463		Little Chaudiere East Branch
" 7, 1907						1364		Little Chaudiere West Branch
						5053		Total mostly calm E. wind
Est'd. H. W. Flow		645.25				6870		Big Chaudiere Est'd H. W. flow
						1510		Little Chaudiere East Branch
						5010		Little Chaudiere West Branch
						13390		Total Est'd.
May 25, 1908	644.23	644.26				5585		Big Chaudiere
" 26, 1908						996		Little Chaudiere East Branch
" 26, 1908						330		Little Chaudiere West Branch
						6911		Total

DISCHARGE MEASUREMENTS FRENCH RIVER—Continued

Date	Water Surface Elevation at North Bay	Water Surface Elevations at French River	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
								267 Main dam Little Chaudiere
								50 Leakage
								317
May 25, 1908						148		North opening dam at Big Chaudiere
						122		South opening dam at Big Chaudiere
						4600		Log channel
						4920		Total + 50 c.f.s. for leakage
June 12, 1908	644.70	644.62				5516		Big Chaudiere West Winds
" 13, 1908						1082		Little Chaudiere East Branch
						476		Little Chaudiere West Branch
						7074		Total
								296 Main dam Little Chaudiere
								55 Leakage
								351
June 12, 1908	644.70	644.62				170		North opening dam at Big Chaudiere
" 12, 1908						142		South opening dam at Big Chaudiere
" 12, 1908						5187		Log Channel
						5549		Total Big Chaudiere + 50 c.f.s.
June 7, 1909	645.31	645.87				7060		Big Chaudiere
" 8, 1909						1368		Little Chaudiere East Branch
" 8, 1909						1765		Little Chaudiere West Branch
						10193		Total
June 8, 1909						1204		Big Chaudiere 60 ft. above dam
" 8, 1909						5856		Log Channel
						7060		Total at Big Chaudiere

DISCHARGE MEASUREMENTS FRENCH RIVER—Continued

Date	Water Surface Elevation above sea at North Bay	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
					.....	386	.....	West Channel Little Chaudiere
					.....	1379	.....	Over dam Little Chaudiere
					.....	1368	.....	East Channel Little Chaudiere
						10193		Total
July 26, 1909	643.15	.....	.....	.....	.....	5169	.....	Big Chaudiere
" 27, 1909	643.10	.....	.....	.....	.....	826	.....	Little Chaudiere East Branch
" 28, 1909	643.00	.....	.....	.....	.....	1675	.....	Little Chaudiere West Branch
						7670		Total
September 8, 1909	641.10	.....	.....	.....	.....	3923	.....	Big Chaudiere
" 8, 1909	641.10	.....	.....	.....	.....	1260	.....	Little Chaudiere West Branch
" 8, 1909	641.10	.....	.....	.....	.....	525	.....	Little Chaudiere East Branch
						5708		Total

Ottawa River at Mattawa

Drainage Area—19,663 sq. miles

Date	Water Surface Elevation nearly lowest pitch	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
March 30, 1901						8225		From Ry.bridge, C. E. Gauvin, Que. Gov't

Ottawa River above Deux Rivieres

Drainage Area—19,880 sq. miles

Date	Water Surface Elevation at Klock Station, Ont.	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
May 15, 1905	484.90					44511		
July 31, 1905	480.15					22058		
October 6, 1905	476.95					14021		
May 11, 1906	489.25					67155		
June 12, 1907	491.06					77100		
May 19, 1908	490.51					75009		
" 20, 1908	490.66					75448		
" 22, 1908	490.86					78085		
June 1, 1908	491.96					83248		
" 10, 1908	491.66					81641		
" 17, 1908	490.56					75795		
May 31, 1909	495.95					111500		
February 23, 1911	477.85	620	13.4	7007	0.827	5850	75.5-20.5%	Above La Vieille Rapids ice measurem't
March 10, 1911	478.05	620	12.5	6835	1.140	7290		" " " " "
" 18, 1911	477.25	620	12.4	6761	1.164	7870		" " " " "

Maganasibi River
Drainage Area—234 sq. miles

Date		Water Surface Elevation at Highway Bridge	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
June	1, 1905	102.23					621		
August	1, 1905	101.55					188		Zero of gage assumed to be 100.0
October	7, 1905	101.02					76		
May	12, 1906	102.45					782		
June	12, 1907	102.34					699		
May	21, 1908	102.84					1065		Estimated
"	29, 1908	102.38					725		"

Rocher Capitaine Rapids, Ottawa River
Drainage Area—20,237 sq. miles

Date		Water Surface Elevation	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
March	14–16, 1901	low water					8400		Est'd C. E. Gauvin, Que. Gov't.

Du Moine River
Drainage Area—1,517 sq. miles

June	2, 1905	103.8					4000		Elev. of Zero of gage assumed to be 100
August	2, 1905	101.02					1926		
October	5, 1905	98.85					672		
May	12, 1908	106.60					6425		Estimated
"	28, 1908	105.98					5875		"

Des Joachims Rapids, Ottawa River

Drainage Area—22,148 sq. miles

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
March 1901	Low water					9050		Est'd C. E. Gauvin, Que. Gov't.

Petawawa River

Drainage Area—1,586 sq. miles

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
April 27, 1905	439.24					1864		
June 17, 1905	440.70					4000		
August 3, 1905	439.69					2647		
October 4, 1905	437.94					606		
May 18, 1908	442.04					6994		
April 20, 1909	440.00	168.5				4190		Highway bridge below C.P.R.
May 4, 1909	440.10	168.5				4540		" " " "
July 30, 1909	439.85	168.5	1.3	698	4.99	3480		" " " "
September 11, 1909	438.50	167.5	2.7	410	3.57	1465		" " " "
March 19, 1910	438.11	168.5	2.3	305	2.95	900		" " " "

Culbute Channel, Ottawa River

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
August 16, 1905	344.76					2791		
November 13, 1905	344.36					3020		
May 18, 1905	350.21					4304		From Chapeau Bridge, C. E. Gauvin
" 31, 1905	350.01					5250		Floats
June 14, 1907	352.32	582				7460		From Chapeau Bridge

Indian or Muskrat River

Drainage Area—440 sq. miles

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
April 28, 1905	380.65					402		Pembroke
June 16, 1905	380.60					441		"
August 4, 1905	377.08					200		"

Black River

Drainage Area—950 sq. miles

May 31, 1905	101.43					3998		Assumed zero of gage 100.0, Waltham, Que.
June 29, 1905	103.64					1858		
August 15, 1905	102.54					547		
November 13, 1905	102.89					816		
June 15, 1907	104.17					3250		Estimated
May 21, 1908	105.70					7411		Floats
May 22, 1908	105.50					6710		"

Ottawa River One Mile Below Allumette Island

Drainage Area—26,072 sq. miles

August 16, 1905	344.76					20014		
November 14, 1905	344.31					16095		
June 15, 1907	352.32					90911		

Coulonge River

Drainage Area—1.820 sq. miles

Date	Water Surface Elevation	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
May 31, 1905	105.30					6466		Ass'md zero of gage 100.0
June 29, 1905	104.40					3143		
August 15, 1905	103.40					1481		
November 14, 1905	103.70					1702		
May 20, 1908	108.70					14868		Float measurement
" 26, 1908	108.50					11633		" "
" 26, 1908	108.50					11636		" "

Ottawa River at La Passe

Drainage Area— 27,900 sq. miles

	Above sea							
May 15, 1905	350.21					62905		
June 28, 1905	347.66					44341		
November 15, 1905	344.36					22628		
June 16, 1907	352.26					95150		
May 15, 1908	353.85					124838		Float measurement
" 16, 1908	354.00					124703		" "
" 18, 1908	354.05					131267		" "
" 19, 1908	353.95					128754		" "
" 23, 1908	353.80					126824		" "

Calumet Channel, Ottawa River

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
August 1900	3 ft. above low water					16565		Ferry at Calumet C. E. G.
May 12, 1905	346.04					26711		4 miles above Campbell's Bay
November 16, 1905	342.39					10925		4 miles above Campbell's Bay
	low water					8000		Ass'd Grand Calumet Falls, C. E. G.
June 17, 1907	347.44					33000		Ferry at Calumet
May 16, 1908	348.60					47453		At Grand Marais Ferry, floats
" 18, 1908	348.60					45528		" " " " "
" 19, 1908	348.50					46266		" " " " "

Ottawa River at Portage du Fort

Drainage Area—28,288 sq. miles

September 13, 1900	2 ft. above low water					492		Portage Channel, C. E. Gauvin

Bonnechere River

Drainage Area—940 sq. miles

April 26, 1905	324.73					1771		At C.P.R. bridge Renfrew
June 16, 1905	324.58					1613		" " " "
August 4, 1905	323.78					812		" " " "
May 19, 1908						3901		" " " "
April 15, 1909	326.18	174.5				2800		" " " "
May 3, 1909	326.88	174.5				4110		" " " "
July 30, 1909	324.38	174.5	2.9	441	1.95	860		" " " "
September 11, 1909	323.68	174.5	2.6	346	1.21	420		" " " "
April 4, 1910	325.13	174.5	3.7	620	2.61	1620		" " " "

Madawaska River

Drainage Area—3,210 sq. miles

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
September 12, 1898						1174		From McLachlin's, W. L. Scott, C. E.
April 14, 1905	263.25					7904		Elevation approximate
" 25, 1905	262.80					6362		" "
June 15 ,1905	262.65					5841		" "
August 5, 905	262.35					4866		" "
May 19, 1908	264.21					18222		
July 15, 1908	261.16					2730		
September 8, 1908	256.21					500		Estimated
April 14, 1909	263.95	297.5	21.9	5042	2.4	10280		1st Highway bridge below C.P.R.
" 21, 1909	266.30	297.5	22.3	6463	2.75	17770		" " " " "
July 31, 1909	261.87	298.5	23.2	5399	0.66	3560		" " " " "
September 13, 1909	261.60	298.5	23.1	4341	0.53	2300		" " " "
April 2, 1910	264.45	270.0	22.7	6132	1.99	12225		" " " " "
February 21, 1911	260.01	153.0	6.3	749	1.00	750		Just below White Lake River, ice
April 19–20, 1911	263.40	340.	15.9	5394	1.485	8010	61.2%	At Wallace's

Mississippi River

Drainage Area—1,400 sq. miles

April 8, 1905	91.99					7755		Assumed zero of gage 87.69
June 14, 1905	89.48					2005		(near Galetta, Ont.)
August 5, 1905	88.74					666		Highway bridge S. Channel
						709		Highway bridge N. Channel
						1376		Total
October 3, 1905	88,06					695		
March 30, 1906						700		High Falls, J. B. McRae
May 20, 1908						2862		

Quyon River

Drainage Area—164 miles

Date	Water Surface Elevation	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
May 30, 1905	105.1	.....	.....	.....	.....	208	.....	Assumed zero of gage 100.0

Ottawa River above Ottawa

Drainage Area—34,623 sq. miles

Date	Above sea							
April 1900	190.07	.....	.....	.....	.....	20842	.....	Est'd by Biggar
March 17–18, 1904	189.39	.....	.....	.....	.....	11500	.....	(A. McDougall) for Chaudiere owners
May 9–12, 1904	196.72	.....	.....	.....	.....	129454	.....	" " "
June 13, 1904	197.26	.....	.....	.....	.....	145118	.....	" " "
July 4–5, 1904	194.64	.....	.....	.....	.....	78864	.....	" " "
August 1–2, 1904	192.22	.....	.....	.....	.....	43515	.....	" " "
" 10, 1905	191.42	.....	.....	.....	.....	31453	.....	
September 30, 1905	190.87	.....	.....	.....	.....	23000	.....	J. B. McRae
" 17, 1906	189.89	.....	.....	.....	.....	12200	.....	Large Price Meter 1000′ below (Skeads' mill)
" 18–19, 1906	189.81	.....	.....	.....	.....	13250	.....	Meter (Haskell)
March 18–19, 1907	189.67	.....	.....	.....	.....	14016	.....	At Besserer's less Gatineau
October 3, 1908	189.79	.....	.....	.....	.....	11200	.....	Est'd from measurements
May 26, 1909	198.30	3965	.....	.....	.....	178900	.....	Skeads' mill

Ottawa River at Chaudiere

See 1908 Report. .....

RIDEAU RIVER
Drainage Area—1,516 sq. miles

Date	Water Surface Elevation	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
April 1, 1901	No gage					14300		Andrew Bell, C. E.
April 20-21, 1905	2.77					2365		No levels to gage
June 6, 1905	1.40					391		
August 14, 1905	1.70					705		
May 13, 1908	gage removed					9409		

GATINEAU RIVER
Drainage Area—9,130 sq. miles

Date	Water Surface Elevation	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
Sept. 30, 1902	Above sea					3887		Est'd from Maniwaki gage
						3000		Est'd from Maniwaki gage
Oct. 7, 1902	E.L.W. 2 ft. ab. L.W.					3375		E.channel 1500 ft. below Maniwaki bridge
						875		W. Channel, Dept. L. M. & F.
Oct. 14, 1902						4250		Total, C. E. Gauvin, Que. Gov't.
						5240		Dept. L. M. & F., bridge near mouth
May 18, 1905	212.49					35103		Chelsea
June 10, 1905	208.91					19863		"
July 3, 1905	206.74					14565		"
July 27, 1905	206.24					9317		"
Sept. 2, 1905	204.86					4897		
Oct. 25, 1905	206.56					10256		At mouth
Oct. 27, 1905	206.66					12546		"
Nov. 2, 1905	206.06					10543		J. B. McRae
May 15, 1906	210.50					32442		Above Ironsides
Oct. 15, 1906	204.66					5578		" "
May 25, 1907	212.71					45594		" "
Aug. 29, 1907						1988		Gens de Terre ½ mile above mouth
Aug. 29, 1907						3432		3½ miles above Gens de Terre
Aug. 31, 1907						774		Desert River above bridge at Maniwaki

GATINEAU RIVER—Continued

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
May 7, 1908	213.46					47920		Above Ironsides
May 12, 1908	214.46					58459		" "
May 15, 1908	214.67					63542		" "
Sept. 30, 1908	203.96					3304		" "
May 21, 1909	215.60	783	20.3	15789	4.15	65580		" "
Feb. 13, 1911	205.36	258	9.4	1603	1.89	3030		Above Wright's Island, ice and open water

OTTAWA RIVER AT BESSERER'S GROVE

Drainage Area—45,473 sq. miles

June 13, 1904	145.80					182000		Est'd A. McDougall
May 8, 1905	136.97					74531		
May 17, 1905	139.64					116000		
June 12–13, 1905	136.72					84978		
July 4, 1905	133.64					54394		
July 28, 1905	132.39					48471		
Sept. 6, 1905	130.06					25540		
Sept. 30, 1905	129.97					29000		Est'd J. B. McRae
Oct. 28, 1905	131.55					37686		
May 17, 1906	110.30					122275		
Sept. 11, 1906	128.51					18746		
Sept. 12, 1906	128.45					17620		
Oct. 13, 1906	128.00					15600		
May 23, 1907	142.00					142468		
May 6, 1908	144.09					160133		
May 11, 1908	146.13					185719		
May 14, 1908	147.13					198660		
Oct. 3, 1908	127.72					14610		

OTTAWA RIVER AT BESSERER'S GROVE—Continued

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
May 20, 1909	147.65	2010				217200		
May 6–7, 1910	139.90	1982	30.7	49821	2.32	115550		
Jan. 25–26, 1911	129.90	1500	22.2	28240	0.679	19150	18.5-76.4%	Ice measurement, 6 ins. snow on ice.
Feb. 15, 1911	129.55	1500	23.0	27128	0.603	16360		Ice measurement, 18 ins. snow and slush

LITTLE BLANCHE

Drainage Area—137 sq. miles

May 29, 1905	97.23					261		2 miles East of Templeton, Que.
Aug. 9, 1905	96.63					36		Zero ass'd 93.43
						20		Estimated L. W.

DU LIEVRE RIVER

Drainage Area—4,013 sq. miles zero ass'd 85.71

April 6, 1896						2500		J. Kennedy
April 2, 1901						2012		Above High Falls, Wm. Kennedy
Sept. 24, 1902		(Drainage area 2204)				1487		1st range Tp. of Campbell, C. E. Gauvin
Feb. 25, 1905						1725		Price meter through ice, Mr. Farlay
May 30, 1905	91.61					12156		
Aug. 10, 1905	88.86					1907		
Nov. 7, 1905	90.01					3734		
May 21, 1908						27588		Float measurement
April 29, 1910	439.60							
	92.6	341	19.8	6749	2.51	16920		2 miles above Buckingham
	431.80							
Apr 13, 1911	89.86	356	11.4	4159	0.84	3295		At Newton's, ice measurement
June 3, 1911	438.20	299	23.0	6874	1.73	11900	61.8	4½ miles above Buckingham

Blanche River

Drainage Area—236 sq. miles

Date	Water Surface Elevation	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. s.	Locality and Remarks
May 31, 1905	103.0					186		Zero of gage ass'md 100.0.
Aug. 10, 1905	100.81	(Elevation s controlle			d by dam)	197		3 miles west of Thurso
May 27, 1908	101.2					449		Lower dam out

South Nation River

Drainage Area—1,436 sq. miles

March 30, 1905						17708		C.P.R. bridge, Plantagenet
June 8, 1905						176		" " "
May 23, 1908						1016		" " "
Apr. 22, 1911	150.0	377	4.3	1305	2.873	3750		" " "
June 1, 1911	145.9	178	0.94	152	1.36	208		

North Nation River

Drainage Area—710 sq. miles

Nov. 8-9, 1901	About low	est level				237		At Oxbow Falls
June 1, 1905	92.82					1546		Ass'd zero of gage 87.52
Aug. 11, 1905	91.72					1320		
May 28, 1908	93.72					3649		

Rouge River

Drainage Area—1,780 sq. miles

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
Mar. 21, 1905						847		Wm. Kennedy, Jr.
June 1, 1905	361.4					4277		1 mile above Ross' Power house
Aug. 11, 1905	360.0					1855		
May 29, 1908	362.5					12163		Johnston's Ferry
May 17, 1909	364.5	430	11.9	5144	5.03	25783		Page's Ferry
Sept. 24, 1910	359.25					1030		Riordon Paper Co., Hawkesbury
Sept. 3, 1910	360.10					1719		Riordon Paper Co., Hawkesbury

Ottawa River, above Carillon

Drainage Area—54,500 sq. miles.

Date	Lower Carillon							
May 29, 1907	76.45					156,000		Above Carillon
Aug. 17, 1907	71.62					47,500		" "
Sept. 14, 1907	70.70					33,041		" "
June 13, 1908	75.87					168,000		At Chute a Blondeau
Sept. 10, 1910	70.87	2289	26.2	56,463	0.613	34,640	58.1%	Carillon

North River

Drainage Area—700 sq. miles

Date	Assumed Elev.							
Jan. 19, 1905						250		Saunderson's Rapids Est'd Leveille
June 3, 1905	94.23					883		2½ miles above St. Andrews, Que.
	low water					233		Mr. Leveille
Aug. 15, 1907	93.92					434		2½ miles above St. Andrews, Que.
Sept. 13, 1907	93.70					387		2½ miles above St. Andrews, Que.

Rigaud River

Drainage Area—175 sq. miles.

Date		Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
		Assumed Elev.							
Apr.	5, 1905	92.55	.....	.....	.....	.....	1997	.....	Zero ass'd Mar. 29, 85.57
						.....	.....	.....	Zero ass'd Apr. 15, 86.55
June	7, 1905	89.34	.....	.....	.....	.....	28	.....	Zero ass'd Aug. 31, 81.80

Ottawa River, 3 miles below Vaudreuil

		Upper Grenville							
May	24, 1905	135.75	.....	.....	.....	.....	29879	.....	
Aug.	5, 1905	130.12	.....	.....	.....	.....	3861	.....	
Nov.	2, 1905	129.26	.....	.....	.....	.....	6779	.....	
July	21, 1906	130.41	.....	.....	.....	.....	7940	.....	
Mar	12-13, 1907	126.56	.....	.....	.....	.....	15190	.....	Back water from St. Lawrence
May	30, 1907	136.10	.....	.....	.....	.....	48590	.....	
June	17, 1908	135.85	.....	.....	.....	.....	39280	.....	

Ottawa River, Ste. Anne de Bellevue

May	24, 1905	135.75	.....	.....	.....	.....	41399	.....	
Aug.	4, 1905	130.12	.....	.....	.....	.....	12336	.....	
Nov.	3, 1905	129.26	.....	.....	.....	.....	13415	.....	
July	21, 1906	130.41	.....	.....	.....	.....	11841	.....	
May	31, 1907	136.10	.....	.....	.....	.....	50781	.....	
June	15, 1908	136.35	.....	.....	.....	.....	42917	.....	

Back River

Date		Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
Sept	14 1903	128.68					26882		Est'd C. E. Gauvin, Que. Govt.
		low. water					20000		" " " "
May	22, 1905	135.75					64530		At Cartierville
Aug.	3 1905	130.12					34767		" "
Nov.	4 1905	129.26					28416		" "
July	18 1906	130.41					34657		" "
May	31, 1907	136.10					37031		At Cap a L'Orme
May	31, 1907	136.10					35000		At Lallemand Est'd
							72031		Total for 2 channels
Sept.	2–6, 1907	128.47					22325		McGill College party
June	20, 1908	135.52					32392		Head of Lallemand channel
June	23, 1908	134.93					32579		Ste. Genevieve
							64971		Total for 2 channels

Mille Ile River

May	20, 1905	135.75					17559		St. Eustache
Aug.	2, 1905	130.12					3486		St. Eustache
Nov.	6, 1905	129.26					1236		1½ mile above St. Eustache
July	18, 1906	130.41					2862		C.P.R. bridge at Rosemere
June	1, 1907	135.85					18641		1½ mile above St. Eustache
June	18, 1908	135.68					17011		C. P. R. bridge at Rosemere

Total for Above four Branches

Drainage Area—55,700 sq. miles.

Date	Water Surface Elevation above sea	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks
May 20–24, 1905	135.75	.....	.....	.....	.....	153367	.....	
Aug. 2–5, 1905	130.12	.....	.....	.....	.....	54450	.....	
Nov. 2–6, 1905	129.26	.....	.....	.....	.....	49846	.....	
July 18–21, 1906	130.41	.....	.....	.....	.....	57300	.....	
May 30, June 1, 1907	135.97	.....	.....	.....	.....	190043	.....	
June 13–23, 1908	135.62	.....	.....	.....	.....	164179	.....	

St. Lawrence River above Cedars

Date	Water Surface Elevation above sea at Metering Section	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks.
Aug. 30–Sept. 1910	129.74	3749	25.4	93850	2.74	257400	60.4	Main Channel
Sept. 2, 1910	.....	219	10.9	2390	2.99	7150	.....	At Valleyfield
				96240		264550		Total

St. Lawrence River Below Cedars

Aug. 24–27, 1910	.....	4009	34.5	92304	2.85	263300	59.1	

St. Lawrence River at Lanoraie

Date	Water Surface Elevation above sea at Lanoraie	Width in feet	Mean depth in feet	Area in sq. feet	Mean Velocity in feet per second	Discharge in c. f. s.	Average depth of Mean Velocity below W. S.	Locality and Remarks.
Sept. 26-27, 1910.....	19.94	3492	34.0	11800	2.30	273250	60.1	

OTTAWA RIVER 1910

Locality	Discharge c. f. s.		Run off			
	Maximum	Minimum	Max. per sq. mile in c. f. s.	Min. per sq. mile in c. f. s.	Ave. per sq. mile in c. f. s.	Per cent. of rainfall
Montreal	174100	30300	3.14	0.55	1.01	61.6
Below Ottawa	122500	20300	2.70	0.45	1.08	64.0
At Chaudiere	75700	16000	2.19	0.46	1.02	60.4
Below Mattawa	55800	11000	2.81	0.55	1.20	73.6
Below Timiskaming	50500	8000	2.84	0.45	1.26	54.3
Quinze River	31700	4600	3.08	0.45	1.29	55.6

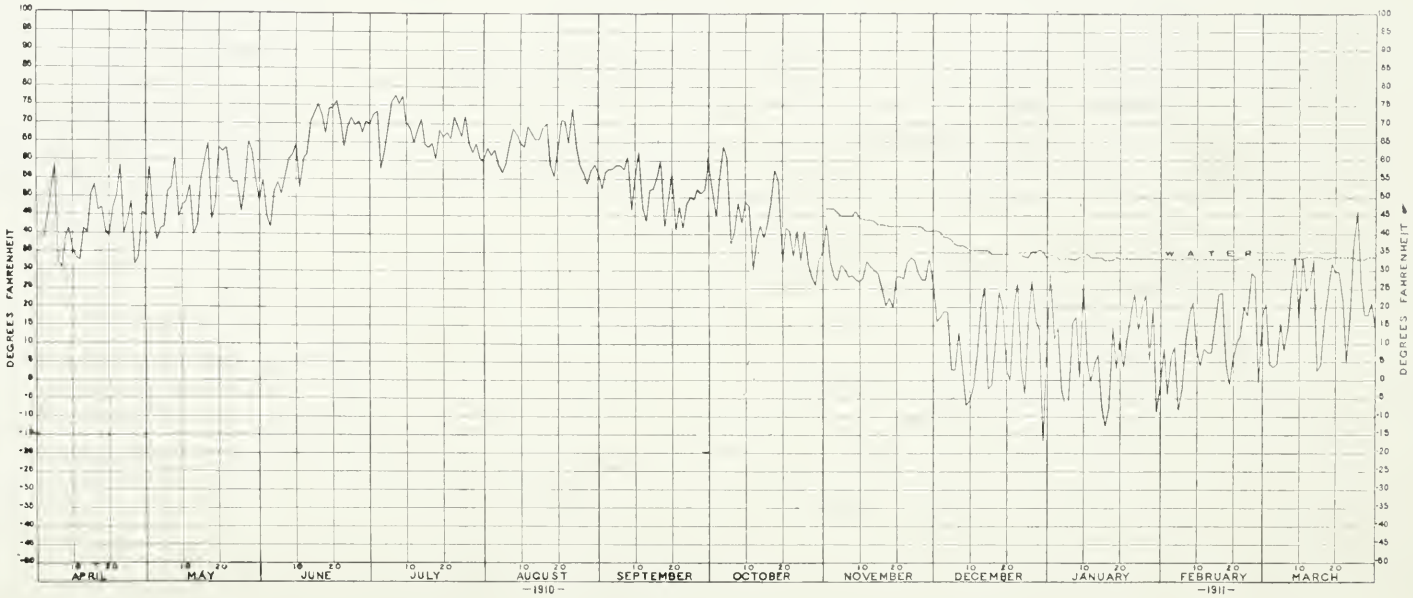
TRIBUTARIES 1910

River	Discharge c. f. s.		Run off		
	Maxi.	Mini.	Max. per sq. mile in c. f. s.	Min. per sq. mile in c. f. s.	Ave. per sq. mile in c. f. s.
North Tributaries.					
Rouge	18200	1350	10.22	0.76	1.15
Du Lievre	17000	1900	4.378	0.47	0.92
Gatineau	48800	4000	5.35	0.44	1.40
Coulonge	20100	950	11.17	0.53	2.74
Black	7050	300	7.41	0.32	1.89
Gordon Creek	2750	265	.....	.....	.....
South Tributaries.					
Madawaska	13500	700	4.22	0.22	0.60
Bonnechere	4200	100	4.67	0.11	0.49
Petawawa	5150	150	3.22	0.09	0.91
Montreal	10350	1300	3.70	0.46	0.76

PUBLIC WORKS, CANADA.

OTTAWA RIVER STORAGE

DAILY TEMPERATURES OF AIR AND WATER AT TIMISKAMING, P.Q.



PUBLIC WORKS, CANADA.

OTTAWA RIVER STORAGE

DAILY TEMPERATURES OF AIR AND WATER AT OTTAWA ONT.

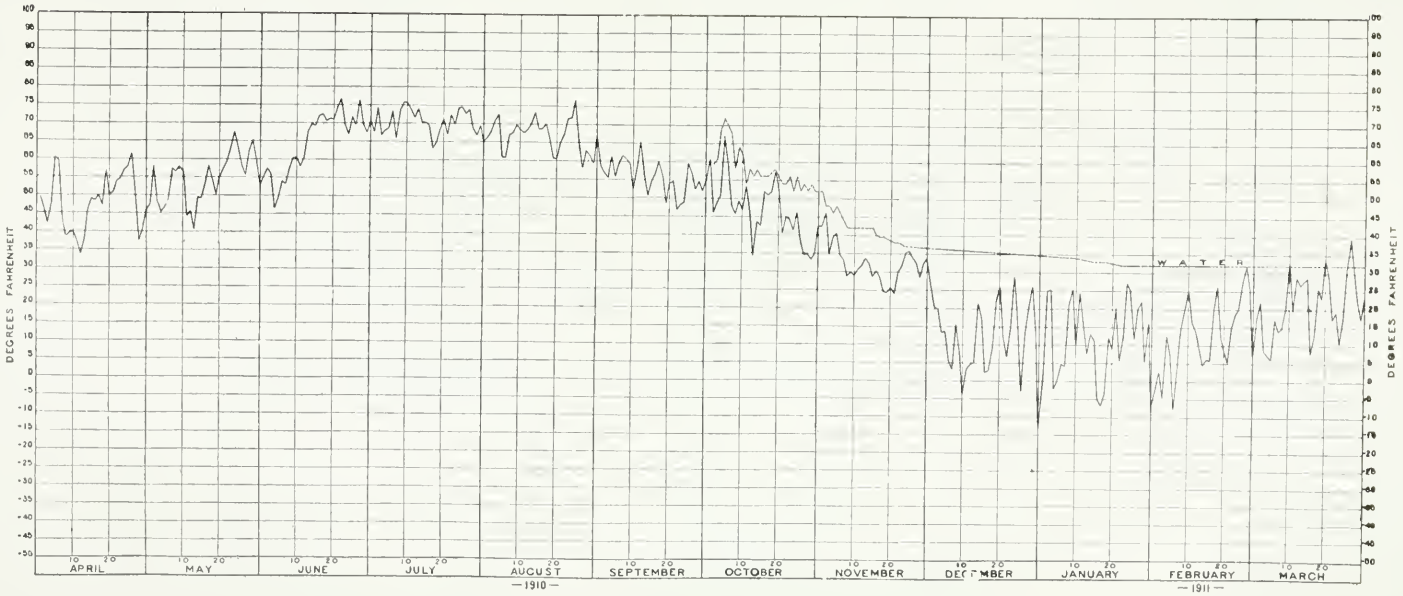


TABLE of Precipitation and Temperature in the Ottawa Valley above Ottawa, and the Mean Monthly Flow at Besserer's Grove.

	Precipitation	Temperature of	Flow c.f.s.	Precipitation	Temperature of	Flow c.f.s.	Precipitation	Temperature of	Flow c.f.s.
	1891			1892			1893		
January	3.2	12	23000	2.5	11	51000	2.2	2	27000
February	2.1	14	18000	2.1	16	35000	2.1	5	20000
March	4.3	20	51000	2.4	21	26000	1.3	22	23000
April	2.2	41	112000	1.5	39	66000	2.8	35	68000
May	0.6	51	144000	1.7	49	73000	5.8	53	160000
June	2.4	65	72000	5.2	62	78000	3.7	67	145000
July	5.3	64	52000	2.3	68	60000	4.3	67	75000
August	3.7	63	54000	4.3	66	43000	5.1	66	44000
September	2.0	61	42000	3.4	57	32000	2.5	53	32000
October	2.3	44	28000	1.5	45	35000	2.1	48	35000
November	2.5	33	35000	3.2	29	40000	1.5	33	36000
December	1.8	28	65000	1.9	15	43000	3.5	10	26000
Mean Monthly	2.7	41.3	58000	2.7	39.8	48500	3.1	38.4	57600
Total	32.4			32.0			36.9		
	1894			1895			1896		
January	3.9	11	22000	3.3	11	23000	2.1	9	56000
February	0.8	11	19000	1.5	13	25000	3.6	12	34000
March	1.9	31	62000	1.1	19	15000	2.4	16	26000
April	0.8	45	94000	2.1	41	79000	1.6	44	115000
May	3.9	54	146000	3.9	59	130000	1.9	58	134000
June	5.9	66	106000	3.3	68	38000	3.5	63	86000
July	2.5	67	68000	2.4	64	49000	3.4	67	54000
August	1.4	62	35000	3.1	65	39000	4.3	65	36000
September	3.1	59	23000	2.9	59	31000	4.3	54	28000
October	3.9	47	37000	1.0	39	24000	1.9	42	36000
November	1.7	28	50000	2.6	32	26000	3.0	34	58000
December	2.3	21	41000	2.9	21	30000	0.9	17	62000
Mean Monthly	2.7	41.8	58600	2.5	40.9	47400	2.7	40.1	60400
Total	32.1			30.1			32.9		

Table of Precipitation and Temperature in the Ottawa Valley above Ottawa, and the Mean Monthly Flow at Besserer's Grove—Continued.

	Precipitation	Temperature of	Flow c.f.s.	Precipitation	Temperature of	Flow c.f.s.	Precipitation	Temperature of	Flow c.f.s.
		1897			1898			1899	
January	2.1	13	42000	2.8	9	26000	2.3	12	34000
February	1.5	15	35000	2.7	17	22000	0.9	11	30000
March	3.6	25	43000	1.9	33	84000	4.7	18	28000
April	2.7	42	80000	0.7	41	95000	0.7	42	94000
May	2.9	53	162000	2.8	56	94000	3.7	55	172000
June	3.1	60	116000	3.3	65	84000	2.9	63	128000
July	3.7	72	61000	1.9	68	62000	6.1	65	74000
August	2.8	62	46000	3.9	65	41000	0.3	66	42000
September	0.6	60	34000	3.5	60	34000	4.6	53	30000
October	1.8	48	27000	4.8	45	46000	2.2	46	45000
November	3.1	29	37000	1.5	32	57000	1.4	33	39000
December	3.5	17	37000	2.7	16	46000	2.8	21	48000
Mean Monthly	2.6	41.3	60000	2.7	42.2	576000	2.7	40.4	63700
Total	31.4						32.6		

		1900			1901			1902	
January	2.0	13	41000	2.5	9	33000	2.8	10	39000
February	3.2	13	31000	0.7	9	26000	2.1	25	35000
March	2.6	15	23000	2.5	22	22000	3.1	32	72000
April	1.1	43	90000	2.4	45	120000	1.8	43	110000
May	2.9	52	111000	3.5	55	134000	2.4	52	114000
June	3.5	64	76000	2.7	65	92000	4.0	58	37000
July	4.2	67	72000	3.4	69	46000	5.5	66	68000
August	3.3	65	59000	4.3	65	31000	2.4	61	47000
September	4.1	58	42000	2.5	58	20000	3.5	58	34000
October	1.5	52	51000	1.9	46	20000	4.0	42	37000
November	2.5	26	48000	3.1	27	28000	2.1	35	56000
December	2.1	15	44000	3.1	16	33000	2.5	12	55000
Mean Monthly	2.7	40.2	57300	2.7	40.5	50400	3.0	41.2	63700
Total	33.0			32.6			36.2		

Table of Precipitation and Temperature in the Ottawa Valley above Ottawa, and the Mean Monthly Flow at Besserer's Grove—Continued.

	Precipitation	Temperature of	Flow c.f.s.	Precipitation	Temperature of	Flow c.f.s.	Precipitation	Temperature of	Flow c.f.s.
	1903			1904			1905		
January	1.9	9	42000	2.6	2	21000	2.5	3	26000
February	3.3	13	36000	1.8	1	19000	1.6	9	22000
March	1.5	33	85000	3.0	21	36000	0.9	25	32000
April	0.9	42	32000	3.6	35	100000	1.3	40	76000
May	1.3	56	104000	3.6	56	166000	2.9	53	100000
June	5.2	59	82000	3.2	62	156000	3.5	63	80000
July	4.2	66	70000	2.8	65	77000	4.5	67	52000
August	3.2	60	47000	3.6	61	42000	2.4	63	36000
September	2.7	57	38000	5.4	52	35000	3.9	58	29000
October	2.0	46	47000	2.2	42	57000	2.6	44	32000
November	0.9	29	37000	1.3	29	32000	1.8	28	35000
December	2.1	6	25000	1.9	5	34000	2.0	18	37000
Mean Monthly	2.4	39.6	58700	2.9	35.9	64500	2.4	39.2	46400
Total	29.2			35.0			29.9		

	1906			1907			1908		
							Appr.	Appr.	
January	2.3	22	35000	0.9	7	18500	2.1	4	39000
February	1.8	14	35000	1.7	5	18000	3.4	7	34000
March	1.2	18	34000	2.0	24	25000	2.1	21	35000
April	0.8	41	62000	2.0	36	73000	1.3	34	83000
May	1.6	52	111000	2.0	46	98000	4.0	35	176000
June	4.5	66	104000	2.7	65	109000	1.0	64	1 5000
July	1.6	68	57000	3.9	67	76000	2.3	69	65000
August	2.3	69	30000	1.0	62	44000	1.4	64	34000
September	2.4	62	16000	3.7	56	33000	1.4	60	18000
October	3.5	48	17000	3.0	42	46500	1.4	40	13000
November	2.6	31	20000	3.8	30	49000	1.5	32	14000
December	2.7	13	27000	3.1	21	45000	3.1	13	21000
Mean Monthly	2.2	42.0	45600	2.5	39.2	53300	2.1	36.9	55500
Total	27.3			29.8			25.0		

Table of Precipitation and Temperature in the Ottawa Valley above Ottawa, and the Mean Monthly Flow at Besserer's Grove—Continued.

	Precipitation	Temperature of	Flow c.f.s.	Precipitation	Temperature of	Flow c.f.s.	Precipitation	Temperature of	Flow c.f.s.
	1909			1910			1911		
January	3.3	8	24500	2.1	17	31000	1.9	10	29000
February	2.2	9	26000	1.1	11	26000	1.9	10	26000
March	3.9	24	31000	1.1	31	39000	1.7	21	21000
April	2.8	34	100000	1.4	47	98000	.....	.....	.....
May	4.5	50	176000	2.4	53	97000	.....	.....	.....
June	1.6	62	160000	1.6	64	79000	.....	.....	.....
July	5.2	65	77000	1.9	69	42000	.....	.....	.....
August	3.0	64	66000	5.0	65	31000	.....	.....	.....
September	2.4	56	47000	1.6	54	29000	.....	.....	.....
October	1.4	43	46000	3.3	44	35000	.....	.....	.....
November	2.4	34	42000	1.6	31	41000	.....	.....	.....
December	2.5	19	45000	1.1	11	38000	.....	.....	.....
Mean Monthly	2.9	39.0	70000	2.0	41.4	48800	.....	.....	.....
Total	35.2			24.2					

LIST OF GAGES ON THE OTTAWA AND ST. LAWRENCE RIVERS, AND TRIBUTARIES

No.	Name of River or Lake	Locality	Recorder	Zero of Gage above Sea	Low Water Gage
1	Lake Nipissing,	North Bay,	J. B. Robertson,	635.00	.....
2	Quinze Lake,	Douglas' Farm,	W. J. Madore,	852.15	.....
3	Quinze River,	Foot of Maple Rapids	G. B. Hull,	825.90	.....
4	Lake Timiskaming,	Haileybury	F. J. Fitzgerald,	577.96	.....
5	Montreal River,	Latchford,	C. J. McCool,	890.88	.....
6	Lake Timiskaming,	Timiskaming Station,	Geo. Clapperton,	573.89	.....
7	Ottawa River,	Timiskaming Station, (below dam)	Geo. Clapperton,	570.00	.....
8	Lake Kipawa,	Kipawa, Que.	Shannon & Fraser,	869.50	.....
9	Gordon Creek,	Lumsden's Mills,	Jas. Kerr,	768.73	.....
10	Ottawa River,	Mattawa,	M. J. Gilligan,	488.86	488.50
11	Ottawa River,	Klock Station,	A. Savard,	480.15	475.25
12	Petawawa River,	Petawawa, Ont.	J. H. Dixon,	438.34	435.61
13	Black River,	Waltham, Que.	N. E. Rochon,	.....	.....
14	Coulonge River,	High Falls,	John Mullin,	.....	.....
15	Bonnechere River,	Renfrew, Ont.	Geo. Scott,	317.38	.....
16	Madawaska River,	Calabogie, Ont.	J. Drysdale,	502.47	499.47
17	Madawaska River,	Clay Bank Bridge (Arnprior)	N. Gendraw,	258.21	.....
18	Ottawa River.	Britannia Bay, Ont.	John Sparks,	187.47	.....
19	Rideau Canal,	Black Rapids, Upper Sill,	Lockmaster,	.....	.....
20	Rideau Canal,	Black Rapids, Lower Sill,	Lockmaster,	.....	.....
21	Ottawa River,	Rideau Locks, Ottawa	Lockmaster,	122.47	.....
22	Gatineau River,	Chelsea, Que.	Jas. Hyde,	203.66	.....
23	Du Lievre River,	Poupore, Que. Upper Sill,	H. R. Gorman,	434.40	.....
24	Du Lievre River,	Poupore, Que. Lower Sill,	H. R. Gorman,	423.40	(Approx)
25	South Nation River,	Plantagenet, Ont.	N. J. Sibley,	170.20	.....
26	Rouge River,	Table Falls,	S. D. Goudie,	356.00	.....
27	Ottawa River,	Grenville, Upper Sill,	Lockmaster,	117.35	.....
28	Ottawa River,	Grenville, Lower Sill,	Lockmaster,	71.80	.....
29	Ottawa River,	Carillon, Upper Sill,	Lockmaster,	74.00	.....
30	Ottawa River,	Carillon Lower Sill,	Lockmaster,	58.70	.....
31	Ottawa River,	Ste. Annes' Upper Sill	Lockmaster,	59.90	.....
32	Ottawa River,	Ste. Annes' Lower Sill	Lockmaster,	57.80	.....
33	St. Lawrence River,	Cedars	E. Bissonnette,	124.50	.....
34	St. Lawrence River,	Lanoraie,	J. E. Arpin,	12.61	.....

DRAINAGE AREAS OF THE OTTAWA RIVER AND ITS TRIBUTARIES

	Square miles.	
Blanche & Wabis Rivers	1,913	
Ottawa River above Montreal and Kipawa Rivers	10,193	
Montreal River	2,800	
Kipawa River	2,133	
Ottawa River Valley between Timiskaming and Montreal River	1,061	
Foot of Timiskaming Lake		18,100
Ottawa River Valley between Timiskaming and Mattawa	683	
Mattawa River	880	
Total to Mattawa		19,663
Ottawa Valley between Deux Rivieres and Mattawa	225	
Total to Metering Section		19,880
Maganasibi R	234	
Total to Deux Rivieres		20,122
Ottawa Valley between Deux Rivieres and Rocher Capitaine	115	
Total to Rocher Capitaine		20,237
DuMoine River	1,517	
Ottawa Valley between Rocher Capitaine and Des Joachims	394	
Total to Des Joachims		22,148
Sehyan River	296	
Petawawa River	1,586	
Indian River	440	
Ottawa Valley between DesJoachims and Paquette	652	
Total to foot Allumette Island		25,122
Black River	950	
¾ mile below Allumette Island		26,072
Coulonge River	1,820	
Total to La Passe		27,900
Ottawa Valley between Allumette and Calumet Islands	332	
Total to foot of Calumet Islands		28,224
Ottawa Valley between Calumet Island and Cheneaux	64	
Total to Cheneaux		28,288
Bonnechere River	910	
Madawaska River	3,210	
Mississipi River	1,400	
Ottawa Valley between Cheneaux and Chats Falls	167	
Total to Chats Falls		33,975
Carp River	133	
Quion River	164	
Ottawa Valley between Chats and the Chaudiere Falls	351	
Total to Chaudiere Falls		34,623
Rideau River	1,516	
Gatineau River	9,130	
Little Blanche River	137	
Ottawa Valley between Chaudiere Falls and Besserer's Grove	67	
Total to Besserer's Grove		45,473
River du Lievre	4,043	
Blanche (Thurso)	236	
South Nation River	1,436	
North Nation River	710	
Salmon River	78	
Rouge River	1,780	
Calumet River	163	
Ottawa Valley between Besserer's Grove and Grenville	408	
Total to Grenville		54,327
Ottawa Valley between Grenville and Carillon	180	
Total to Carillon		54,507
North River	700	
Rigaud	175	
Ottawa Valley between Carillon and head of Montreal Island	311	
Total to head of Montreal Island		55,693
Total to mouth of Ottawa River		56,043

PUBLIC WORKS, CANADA.

OTTAWA RIVER STORAGE

PLAN OF

RIVER ST. LAWRENCE

SHOWING LOCATION OF METERING SECTIONS

above and below Cedars Rapids

and at Valleyfield.

RIVER ST. LAWRENCE METERING

TWO AND A QUARTER MILES ABOVE CEDAR RAPIDS

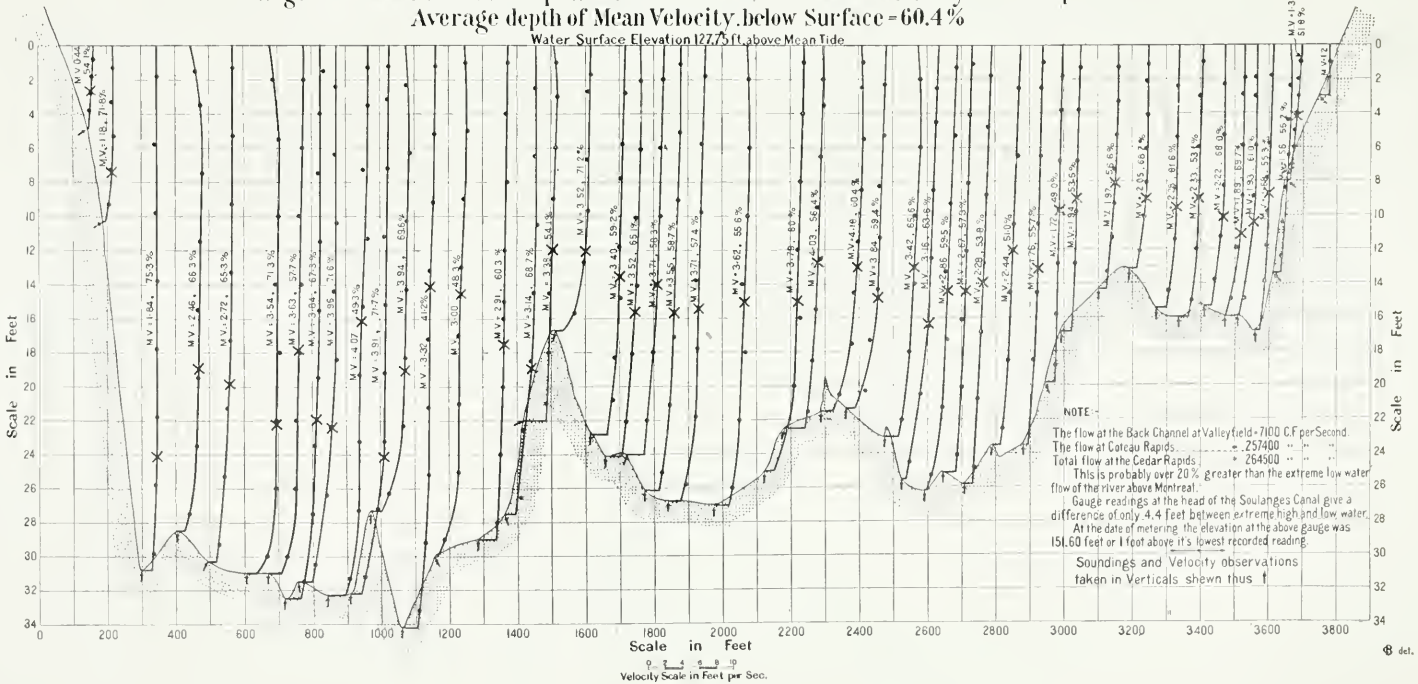
CEDARS, P.Q.

August 30th to September 2nd 1910

Gauge = 126.40 Area = 93851.2 Sq. Ft. Flow = 257404 C.F.S. Mean Velocity = 2.74 Ft. per Sec.

Average depth of Mean Velocity below Surface = 60.4 %

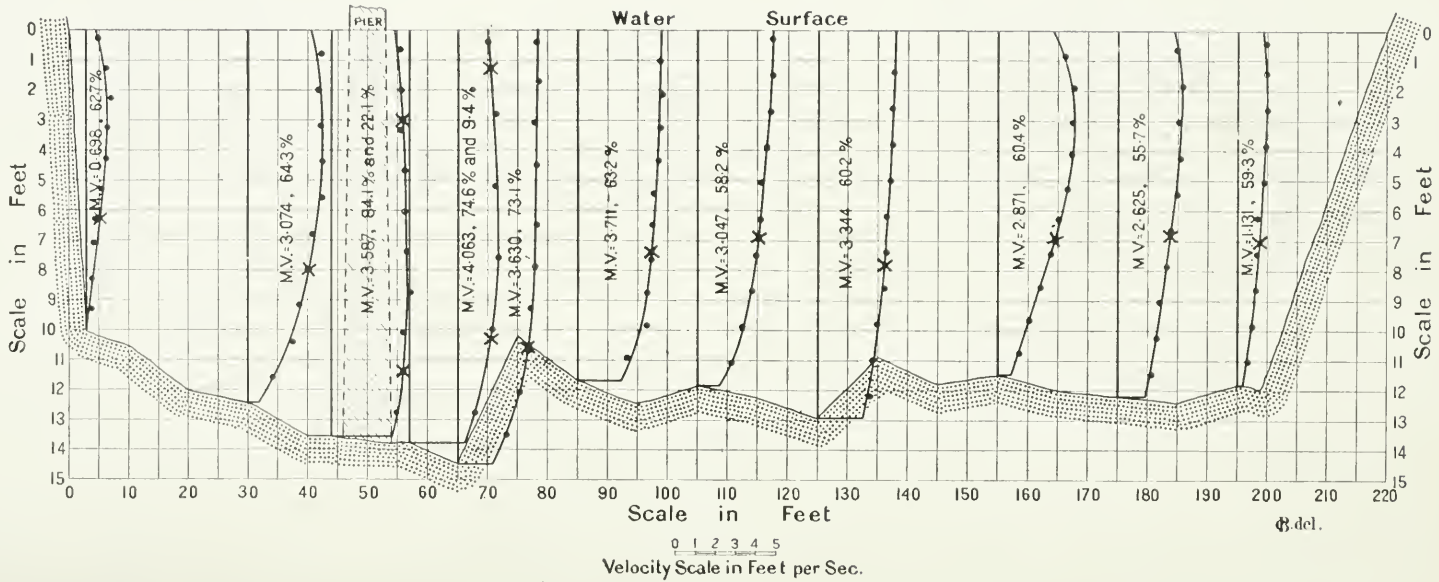
Water Surface Elevation 127.75 ft. above Mean Tide



8 del.

RIVER ST. LAWRENCE METERING

DISCHARGE MEASUREMENT
OF THE
BACK CHANNEL
AT
VALLEYFIELD
July 7th 1911



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St. Lawrence River Meterings.

ABOVE MONTREAL.

S. B. Johnson, Asst. Engineer.

After visiting the St Lawrence river between the Cedars and Cascades, for the purpose of selecting a metering station, the first place decided upon was about two miles below Cedars Village. Here a metering was made on the 25th and 27th of August. The following is a description of the method employed for this measurement.

A base line was first measured off on the North Shore, a distance of 1,175 feet. Thirteen float observations were made across the channel at varying distances apart. The instrument man stood about the centre of the base line using a box sextant to obtain the angles as the floats crossed the upper and lower ranges. These ranges were placed at each end of the base line at an angle of 97°. The floats were timed in their course down stream, the mean surface velocity at that part of the channel was thus found to be 3.6 feet per second. After the courses of the different floats were plotted, enabling us to ascertain the mean direction of the current, an angle was turned from the lower end of the base line at right angles to this direction. Upon the line secured by the turning of this angle, we began our work.

The current meter measurement was made from a small boat with two men rowing. (See photo.) For the velocity observations, a small Price meter was used, the speeds being taken at 10 or more points from the surface down at each sounding. The distances between these soundings varied considerably.

The above section cannot be recommended for permanent use as a metering station. Not only is the current in some parts too swift for accurate soundings, but it is very uneven, requiring a great deal of extra time in observing the mean speeds at the different points where velocities were taken.

During the metering a high wind was blowing, causing the boat to rock considerably. This would increase the revolutions of the meter wheel beyond that directly caused by the current.

The following is a summary of this measurement:—

Gage reading on pier near North Shore	2.00 ft.
Total width of water surface	4,010 "
Maximum depth	37 "
Average depth	22.7 "
Area of cross section	90,774 sq. ft.
Mean velocity	2.90 ft. per sec.
Flow in cubic feet per second	263,550
Average depth of mean velocity below surface	59.1%

Having demonstrated the unsatisfactory nature of the site below the Cedars the first narrows above the Cedars was visited. A series of float tests and soundings were carried on after which a base line 1,435 feet long was laid out, which proved this location to be much superior to the former. The methods used were the same as described above, the only difference being in the length of the base line and the angles at each end for the ranges, the latter were set at 90° with the base line. The mean surface velocity was only 2.9 feet per second for the entire width of the channel, making it over half a foot per second less than the section below the Cedars, also the current is much evener and there are no eddies. These conditions

No. 53.—A partial view of the Montreal Cotton Co.'s mills at Valleyfield, Que. Under 11 feet head the Company develops 7,000 horse power, utilizing this to run 300,000 spindles, 5,000 looms, and to light the town of Valleyfield.

led to the choice of this upper stretch for any future meterings to be made immediately above Montreal. Page 139 shows the cross section and vertical velocity curves.

Here for the actual metering a large Price current meter was used with a special 35 lb. weight. The weight is made of lead with a solid brass head and wooden tail piece. The length is the same as the 65 lb. weight supplied with the meter, but the body is much narrower, the current therefore not having nearly the same effect on it as on the more bulky ones. The electric current was carried down from two dry batteries through a No 14 insulated wire to the binding post on the meter; the return being carried by the 3/16 ins. cable holding the meter rod; this was connected to a telephone receiver held to the ear by the observer and thus the number of revolutions during 100 or more seconds recorded. The angles were turned with a transit from shore giving the basis for the subsequent calculation of the distances across stream of the velocity observation points.

The experience at the lower metering section decided us to procure, if possible, a larger boat. We were able to secure a rather clumsily shaped one but it was fairly steady and could be handled by five men. It is a most essential point to secure a boat that will rock as little as possible, as every movement affects both the turning of the wheel on the Price meters and the depth at which they are held.

The gage used is less than two miles below the metering section and is on the down stream side of the wharf just above the Cedars. If meterings are to be continued at this part of the river, a gage reader should be appointed to send weekly returns to this office

After completing the measurement of the main channel, the metering outfit was driven across the island to Valleyfield and a metering made of the back channel from the first high way bridge below the Montreal Cotton Co's. Mills. Photograph No. 53 shows a view of the forebay of these mills and of the bridge from which the measurement was made. The current under the bridge is swift and even, it averages at the surface about 3.5 feet per second. There is only one pier, the spans being respectively 45.5 and 166.7 feet long. Soundings and velocities were taken every 10 feet across the bridge, the latter at 7/10 from the surface. Having reached this location in the afternoon I was unable to make a point measurement on account of the mills closing down at 6 o'clock and thus materially changing the flow. From past experience with similar channels 7/10 from the surface was judged to give the nearest to the mean velocity in the verticals. A point measurement requires a long day's work and should at some future date be undertaken.

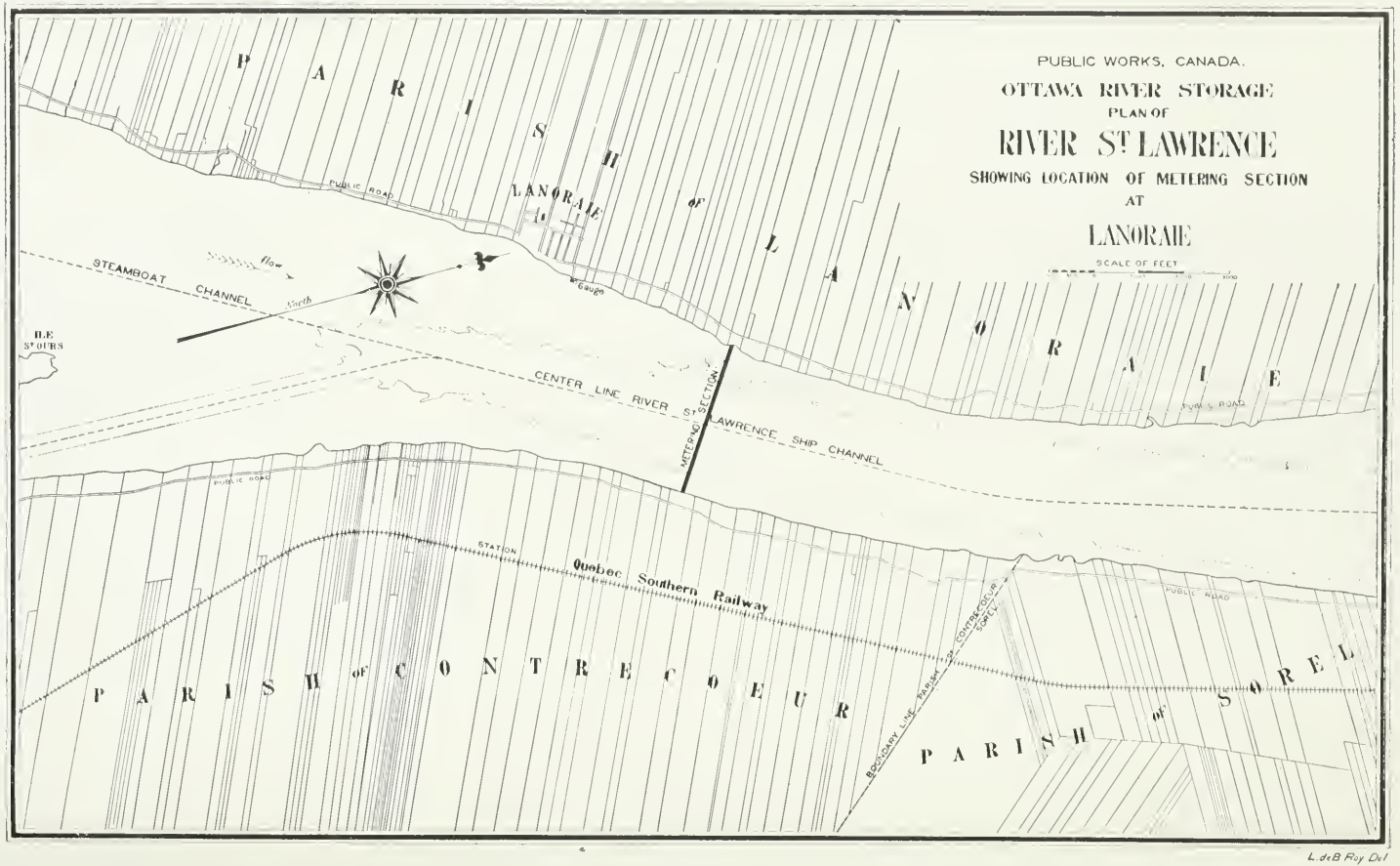
The small Price meter was used here with two weights, one 7 lbs. and the other 15 lbs.

The following is a summary of the two measurements:—

MAIN CHANNEL.

(August 30th to September 1st, 1910.)

Drainage area to head of Cedar rapids	430,000 sq. mls.
Gage on wharf at Cedars	126.40 ft.
Total width of water surface	3,749 ft.
Maximum depth	34.2 ft.
Average depth	25 ft.
Area of cross section	93,851 sq. ft.
Mean velocity	2.74 ft. per sec.
Flow in cubic feet per second	257,400 c. f. s.
Average depth of mean velocity below surface	60.4 %


PUBLIC WORKS, CANADA.
OTTAWA RIVER STORAGE
PLAN OF
RIVER St LAWRENCE
SHOWING LOCATION OF METERING SECTION
AT
LANORAIE
SCALE OF FEET
PARISH of LANORAIE
PUBLIC ROAD
LANORAIE
Flow
STEAMBOAT CHANNEL
North
Gauge
H.E. St OURS
CENTER LINE RIVER St LAWRENCE SHIP CHANNEL
METERING SECTION
PUBLIC ROAD
STATION
Quebec Southern Railway
PUBLIC ROAD
PARISH of CONTRECOEUR
BOUNDARY LINE PARISH of CONTRECOEUR & SOREL
PARISH of SOREL

L. deB Roy Del

RIVER ST. LAWRENCE METERING

ONE QUARTER OF A MILE BELOW

LANORAIE, P.Q.

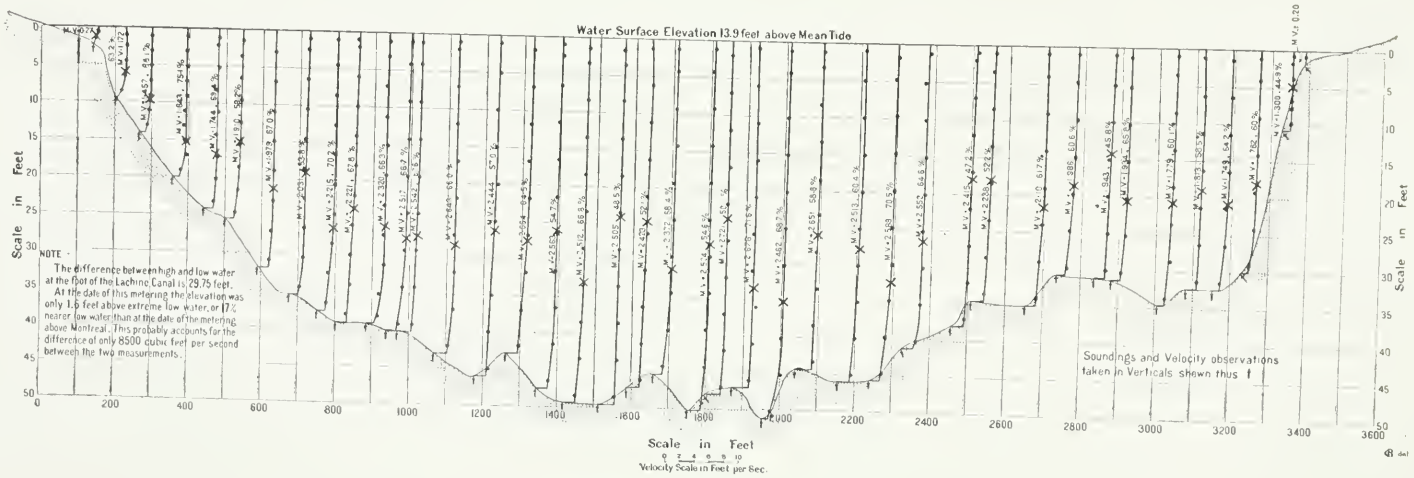
September 26th and 27th 1910

GAUGE READING, LANORAIE WHARF.

Area = 118582 Sq.Ft. Flow = 273000 C.F.S. Mean Velocity = 2.30 Ft. per Sec.

Average depth of Mean Velocity below Surface = 61.5 %

Mean depth = 34 Ft., Width at Water Surface = 3492 Ft.



BACK CHANNEL.

(*September 2nd, 1910.*)

Gage reading below power house	
Total width of water surface	218.7 ft.
Maximum depth	13 ft.
Average depth	10.9 ft.
Area of cross section	2,389 sq. ft.
Mean velocity	3 ft. per sec.
Flow in cubic feet per second	7,150 c. f. s.

Total flow of the two channels ..... 264,550 c. f. s.

During both meterings there was a very strong wind blowing. It is impossible until further meterings are made to say to what extent the revolutions of the meter wheel were affected.

Metering below Montreal.

For the metering station below Montreal, a straight and narrow reach of the St. Lawrence river, 7 miles above Sorel, was chosen. The actual metering section was laid out on the 23rd September, 1910, ¼ of a mile below the wharf at Lanoraie village.

The direction of the current was observed at numerous courses across the channel, the usual apparatus—cedar posts weighted at one end with stones sufficiently heavy to allow of only a few inches appearing above the water surface—being used. In this way the wind had very little effect on their direction. A white flag was attached by a thin stick to the top of the float, this could be seen clearly through the sextant without the use of a telescope.

The current was found to be very uniform in speed as well as direction. The base line was run on the east shore parallel to the mean thread of the current, running a distance of 2,000 feet up stream from the proposed metering section. The following day was too windy to attempt to use the current meter. On the 26th and 27th the days were fine however and the metering was successfully carried through, a large Price meter being used.

Velocity observations were taken at 40 verticals averaging 80 feet apart. In each of these verticals a sufficient number of velocity records were obtained to make it possible to determine the depth below the surface of the thread of mean velocity. Page 145 shows the cross section and the vertical velocity curves thus secured.

The gage on the wharf at Lanoraie village together with the Sorel gage will be sufficient to use in connection with the flow measurements in plotting a discharge curve.

The following is a summary of the metering made on the 26th and 27th of September.

Drainage area — 489,300 square miles, to Lanoraie village.

Gage reading at Lanoraie, 26th inst.	1.30
" " " 27th "	1.10
Width of water surface	3,492 ft.
Maximum depth	50.2 ft.
Average depth	33.9 ft.
Average depth of mean velocity	61.5 %
Mean velocity	2.3 ft. p. s.
Area of cross section	118,580 sq. ft.
Flow in cubic feet per second	273,000

The rating of the pivot point used for the above measurement gave a graphical equation as follows:—

$Y = 3.204\ x - 0.109$, in which y is the required velocity in feet per second and x the revolutions of the meter wheel per second.

Natural Storage of the St. Lawrence River.

The question of storage reservoirs has been exhaustively entered into by a report regarding Reservoir Sites in Wyoming and Colorado by Captain Hiram S. Chittenden, Corps of Engineers, U. S. A. (House Doc. 141, 55th Congress, 2nd Session 1898).

Natural Reservoirs.—"Nature presents abundant examples of the effective control of stream-flow through the agency of reservoirs. There are indeed comparatively few streams whose flow is wholly uninfluenced by such action. The most perfect example in the world, both as to the magnitude of the stream and the completeness of control, is the St. Lawrence River, embracing the great chain of North American lakes. Considering only that portion of the system which lies above the Falls of Niagara, let the flow at the outlet be compared with that of other streams of similar magnitude. For this purpose take the Niagara River at Buffalo, the Ohio at Paducah, Ky., the Missouri at its mouth, and the Mississippi just above the mouth of the Missouri. The following table gives the area of watershed in square miles and the mean annual discharge in cubic feet per second of each:

	Niagara.	*Ohio.*	*Missouri.*	*Mississippi.*
Watershed, sq. miles..	265,095	205,750	530,810	171,570
Discharge (mean) c.f.s..	232,800	307,000	100,000	130,000
Discharge per square mile, c.f.s.	0.87	1.48	0.18	0.75

"The above discharge for the Niagara River is based upon twenty-five years' record (1871-1895): that for the Ohio and Upper Mississippi upon six years' record (1880-1885); and that for the Missouri upon twelve years record (1879-1890)."

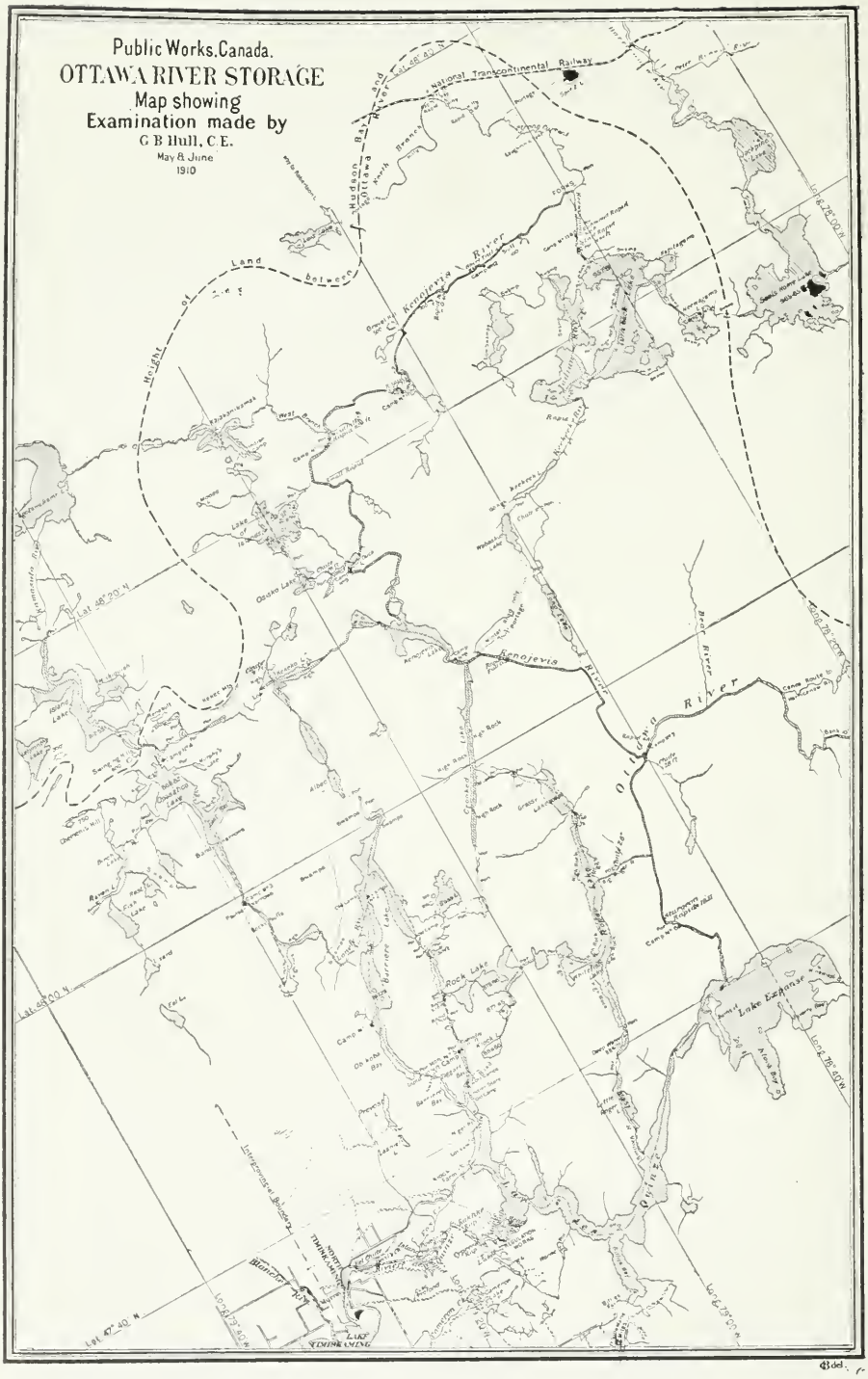
"The maximum and minimum discharges, except for Niagara, show a much greater divergence, the ratios of maximum discharge: minimum discharge for 1883 being as follows:"

"Niagara, 1.19; Ohio, 28.22; Missouri, 29; and Upper Mississippi, 10.29.

"The striking dissimilarity in the regimen of streams of similar magnitude, and, with one exception, of similar conditions, is entirely due to the reservoir action of the Great Lakes. Of that portion of the St. Lawrence drainage-basin which lies above Niagara Falls, viz:—265,095 square miles, 87,400 square miles, or almost one-third, is made up of the water surfaces of Lakes Superior, Michigan, Huron, and Erie. One foot upon this immense area represents 2,436,000,000,000 cubic feet—greater than the excess of the late Mississippi River flood at Cairo above the bankful stage."

"The mean annual fluctuation of Lake Superior, based upon twenty-five years' observation (1871-1895), is 0.93 feet: of Lakes Michigan and Huron, 1 foot: of Lake Erie, 1.16 feet. This fluctuation represents an annual storage of 2,319,000,000,000 cubic feet of water, equivalent to about 153,000 cubic feet per second for a period of six months. The maximum annual fluctuation during the above period is just about twice the above mean, and of course represents twice as much water stored."

"In addition to the annual fluctuation, there is constantly going on a periodic change which often requires several years to complete the cycle. As an illustration of this characteristic of the Great Lakes take the period of eight years from 1872 to 1879 inclusive, during which the mean annual level of the four upper lakes


Public Works, Canada.
OTTAWA RIVER STORAGE
Map showing
Examination made by
G B Hull, C.E.
May & June
1910
National Transcontinental Railway
Hudson Bay and Ottawa River
Height of Land between
Kenojevis River
Ottawa River
Lake Expanse
Rock Lake
Lake Timiskaming
Lat 48° 40' N
Lat 48° 20' N
Lat 48° 00' N
Lat 47° 40' N
Long 78° 00' W
Long 78° 20' W
Long 78° 40' W
Long 79° 00' W
Long 79° 40' W
Long 79° 20' W
Long 79° 40' W
Interprovincial Boundary
NORTH TIMISKAMING
Blanche Riv.
Beaver River
Ogden Lake
Kenojevis River
Ottawa River
Lake Expanse
Rock Lake
Lake Timiskaming

rose for a period of four years and fell during the following three years. The rise in mean level was, for Lake Superior, 1.03 feet; for Lakes Michigan and Huron, 2.02 feet; and for Lake Erie 1.97 feet. The total storage represented by this rise of mean level was 4,000,000,000,000 cubic feet. The fall in mean level following the rise was, for Lake Superior, 1.63 feet; for Lakes Michigan and Huron, 1.46 feet; and for Lake Erie, 1.17 feet—equivalent to 3,627,000,000,000 cubic feet. After this fall the mean level began to rise again."

"The foregoing figures convey some faint idea of the magnitude of the storage of the Great Lakes, and of the way in which it operates to preserve a balance not only between the wet and dry seasons of each year, but between those cycles of wet and dry years which are continually recurring. These reservoirs absorb the flood-waters of spring and pay them out in the following dry season, thus preventing floods on the one hand and low water on the other. And while these seasonal changes are going on the lakes respond to the varying conditions of longer periods, levying upon years of more than average precipitation in order to maintain a flow in the outlets during the years of deficiency which are certain to follow."

"The result of this storage action of the Great Lakes is to produce a river system radically different in its general characteristics from nearly all other streams. Such conditions as high and low water, as elsewhere understood, are here entirely unknown. Commerce pursues its way through these lakes and rivers without serious hindrance except when ice closes the way; and the river and harbor engineer has little to do with low-water problems or protection against floods, but rather with the deepening of harbors and connecting channels for an ever-increasing size of vessels and volume of commerce."

The vital function which the fluctuation of levels, both annual and cyclic, plays in the company of the Great Lakes is doubtless not generally appreciated even by the engineering profession. Only recently distinguished engineers have boldly asserted that this fluctuation of levels is an evil which must not be suffered to continue, and they have proposed plans by which it may be corrected. Yet nothing is more certain than that any curtailment of these fluctuations, either annual or cyclic, can be accomplished only by a corresponding curtailment at certain seasons of the discharge of the lake outlets."

Exploration of Northern Part of Quinze Expanse Basin.

G. B. HULL, ASSISTANT ENGINEER.

In April, 1910, I left Mattawa for an exploring trip in the Ottawa Valley, particularly directed toward a close examination of the water courses discharging into Quinze Lake and Lake Expanse from the north; that is to say, Barriere and Opasataka Lakes, discharging into Quinze Lake and the whole watershed of the Kenojevis River, which delivers its flow into the Ottawa river about 18 miles above that stream's junction with Lake Expanse. I also went into two other tributaries; that is, Rock Lake and Roger Lake.

I arrived at Timiskaming on May 3rd, and spent the time between the arrival of the train there and the leaving of the next boat for Haileybury in discussing the information required and the best methods of obtaining it, with Mr. Matheson and gathering facts as to what was already known of the district I was to explore. At Haileybury, where I arrived on May 5th, is a gaging station, the zero elevation of which is 577.50. On my arrival there the reading was 8.80, indicating an elevation of 586.30 of the water surface of Lake Timiskaming. On the following day I took the boat to North Timiskaming where I installed two gages, one to check the other, the first located at a saw mill about 1½ miles down stream from the village and the other on the wharf at the village of North Timiskaming.

The camp equipment, with the exception of one large and one small canoe, having been shipped to this point, I made arrangements to have it and the supplies transported to Klock's Depot, on Quinze Lake, which point it had been decided to use as a base for the expedition. With this done I was free to continue the work of transferring the correct elevation from Haileybury to a bench mark which had been assumed at the foot of what is known as the last chute of the Quinze Rapids, by a party which made a survey for the development of a water power at this place.

As directed by Mr. Matheson, I made a survey of the river from a point where the shore of Lake Timiskaming is intersected by the boundary line between the provinces of Quebec and Ontario to the beginning of Mr. Anderson's survey of the Quinze River, as shewn an maps given me by Mr. Matheson, carefully watching in the meantime the gages installed and comparing them with that at Haileybury in order to get the correct elevation transferred to North Timiskaming. After observing these readings for a period of five days, I established a bench mark on the wharf there and carried a line of levels across country to the bench mark at the foot of the Quinze and found a difference between the elevation as calculated by assuming the water to be level from North Timiskaming wharf up the river to the foot of the rapids of 0.80 feet. In order to check this I then ran another and independent line of levels from the bench mark at the foot of the Quinze back to my bench mark on the North Timiskaming wharf and found exactly the same difference, indicating a fall in the river between the last chute of the Quinze River to North Temiskaming wharf of 0.80 foot. This has since proven to be correct from information obtained from the Provincial Government at Quebec, their difference agreeing with mine exactly.

I then transferred the elevation to the surface of Quinze lake by adding the fall of the Quinze River from the lake to the foot to the water elevation at the foot as I found it. The fall of the river being determined from surveys made in connection with the water power development, plans and profiles of which had been furnished me. By this method I was able to establish correctly the elevation of

Quinze and Expanse Lakes and also to refer the zero of gage board which had been established at Klock's Farm to a sea level datum—the elevation being 852.15.

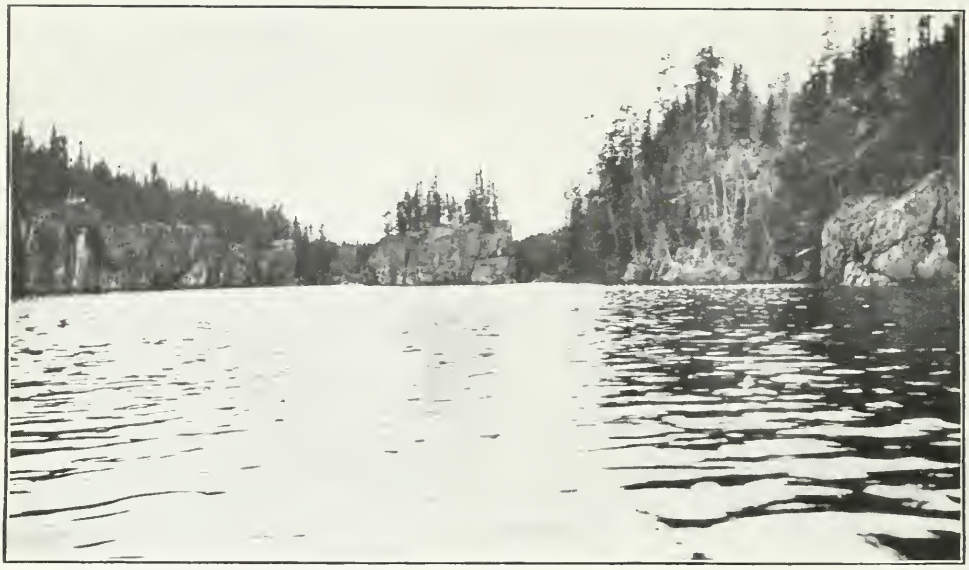
The traverse was tied at one end to the Ontario-Quebec boundary line and to the west boundary line of R. H. Klock & Company's timber limit at the foot of Quinze Rapids, as shown on limit plan given me and to the zero station of Mr. Anderson's survey of the Quinze River and Rapids, which point is also tied into the Klock boundary line. Both the Ontario-Quebec boundaries and the Klock limit line were assumed to be true meridians. The traverse developed the fact that both are paralled and both bearing due north.

This work occupied the whole week, one-half day being lost on the 13th on account of rain; and on Sunday, May 15th, all the members of the party having arrived and supplies having been taken in, I moved them to Klock's Depot on Quinze Lake, our base of supplies.

The Department had stored at this place the launch "Laurita", which was to have been taken as far as possible by this party, but on examination, after taking her from the storehouse and putting her into the water, it was found that the engine was in such bad condition, being nearly worn out, that we were unable to take advantage of a power boat. This fact is to be regretted, as she would have been of great assistance and would have made no inconsiderable saving in time, for it was only in the last forty mile upper reach of the Kenojevis where she could not have been taken. The large canoe which we found at Klock's was in very bad shape, and Monday and Tuesday were used in painting and putting into shape this and a small canoe which was also there.

On Wednesday morning we left our base for the height of land by the way of the Barriere and Lake Opasataka.

A RELIC OF THE PAST.
No. 54.—Long Point—an old Hudson Bay Co. Trading Post, Lake des Quinze—abandoned.



No. 55.—Barriere Lake.

The first camp was made at a point on the west shore of Barriere Lake about 14 miles from the rapids at the mouth of a small creek, which place was reached late in the day and in a heavy rainstorm.

The remainder of this week was devoted to carrying the elevation from Quinze Lake to Barriere Lake over the rapids. I found a difference of 10.24 feet in the water levels, making the elevation of water of Barriere Lake 867.29.

A traverse line was also carried from the head of the Barriere Rapids with the double purpose of showing the shape and size of the different lakes and rivers traversed as well as to ascertain the exact distance passed over in order to be able to plot an accurate profile of the water surface.

Attached is a photograph showing the head of the Barriere Rapids which may be considered to be the dam site which must be used in holding any water over the present surface of Barriere and Opasataka, if they are to be treated as a separate reservoir from Quinze-Expanse.

Barriere Lake is situated immediately north of the north west arm of Quinze Lake and is connected to it by a short river, or more properly an arm of the Quinze, the water surface of which is level, the head of which is a rapid 960 feet long over which is distributed a fall of 10.24 feet. This is divided at the head into two channels by an island about 250 feet long. The channels join at the foot of this island and continue to the bottom in a very rough boulder lined channel. The lake itself is one which runs almost exactly north and south, has high banks on all sides except at its northern extremity; here there are long reaches of swamp which would be entirely flooded by raising the water even the small amount of two feet. There appears to have been a very small fluctuation in the high water line, due probably to the fact that the spring freshets have been absorbed by the swamps and the increased area of its surface due to

flooding back when the high water took place. In 1910 the high water mark was probably no more than the elevation of the water as I found it. In 1909 it was 3.23 feet above the elevation at this time, or 870.52. The shores are almost altogether covered with second growth of spruce, poplar, balsam and a small amount of birch timber and the destruction caused by any alteration in the elevation of the water surface of this lake would be practically nothing to merchantable timber, but there might be some destruction of pulp timber. The steep shores of the lake, however, would not allow the water to flow back except as I will note, that is to say, at the north end and in the Lonely River, to any extent worth considering, and the damage therefore to timber interests will be practically nothing.

There is only one creek running into Barriere Lake which I thought it at all necessary to go up. This is a small stream about 14 miles above the rapids, at the head of which is a small lake about three-quarters of a mile in diameter, and the storage possibilities are too small to be considered.

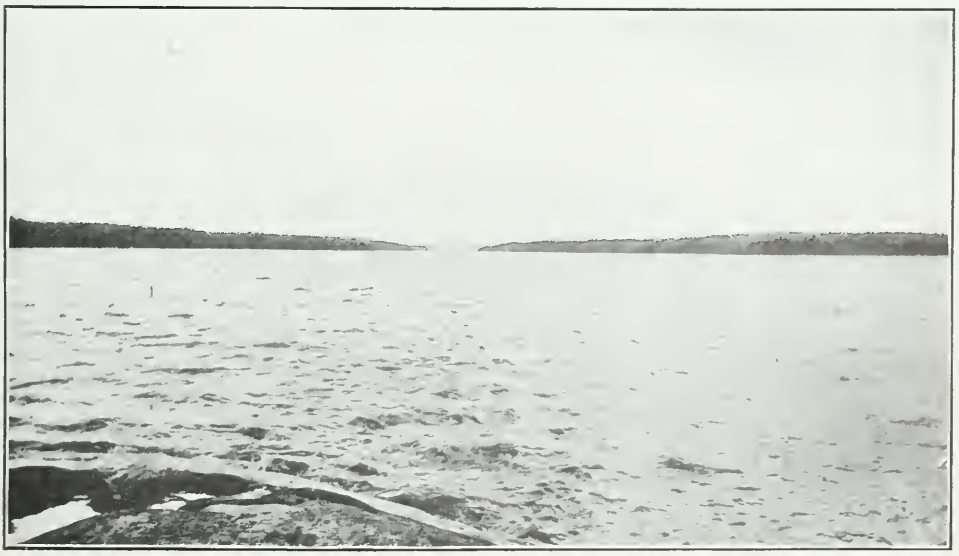
When the traverse line had reached the north end of Barriere Lake, which was on Tuesday, May 24th, I moved camp to a point near the mouth of Lonely River. This river should be called an arm of the Barriere Lake as it is nothing more or less than the water course through an immense swamp connecting Barriere Lake with Lake Opasataka. The banks of this river do not exceed 7 feet in height at any point. It is 7 miles long and has a fall of only 1.53 feet throughout the whole distance. The ground is practically level on each bank for a distance of as much as 8 miles in some places, varying to a distance of only 1 mile at the narrowest point. This river is fed by innumerable streams running in from each side, there being only one of any considerable size. There is some timber along this river that would be destroyed by any increase of the elevation of the water surface, although it is flooded in high water. The surface of this river varies exactly the same as the surface of Barriere Lake. I attach several photographs showing the general nature of the country surrounding this stream.

No. 56.—Head of Barriere Rapids, showing two channels. Water surface is practically level to height of land, 50 miles northward.

No. 57.—East or main channel, Barriere Rapids.

No. 58.—Running Barriere Rapids. Looking from foot of Portage.

No. 59.—Running Barriere Rapids. Near the head of Main Channel.



No. 60.—Looking south down Barriere Lake toward Obikoba Bay from Camp No. 1. The level of this lake extends to the height of land.

No. 61.—Barriere Lake from Camp No. 2—looking south toward Obikoba Bay, which is same level.

No. 62.—Mouth of Lonely River, connecting Barriere Lake with Opasataka Lake, which is practically the same level

No. 63.—View on Lonely River, showing swampy sides and small timber.

No. 64.—Typical view on Lonely River—connecting Opasataka and Barriere Lakes—from Opasataka Lake.

No. 65.—Ellison's or Paulson's Narrows on Lake Opasataka. Buildings are occupied by Indians in winter as fur trapping headquarters. In summer a supply of potatoes for winter is raised.

At the head of Lonely River is Lake Opasataka. The elevation of its water surface on June 11th was 868.82, which is approximately the high water elevation for 1910. The high water of 1909 was 872.34, being almost the same variation as the Barriere Lake. This lake is a long narrow body of water toward its south end, the shores of which are deeply indented by long narrow bays: toward its north end it widens out to a very considerable size and the surface is materially increased by these bays. The shores are practically the same as Barriere Lake: being high and rocky except at the mouth of several creeks which come in from both sides. The shores are covered with small timber suitable only for pulp and the damage incurred by raising the water will not amount to anything from the destruction of merchantable timber. There are, however, on the shores of this lake three settlers who have some clearance. The first, a man called Wm. Paulson who has located at the narrows shown on the maps as Ellison's narrows. The second is an Indian located in the large bay to the west, the third being a trading station owned by Revillon Bros. This place is at the extreme northern end of the lake and is flooded at periods of high water in the lake. A photograph is attached showing these buildings, and a settlement will undoubtedly have to be made for the continued flooding of them.

Immediately to the north of Lake Opasataka is the height of land between the St. Lawrence water-shed and the Hudson Bay water-shed. A few hundred feet over the height of land a large long lake known as Island lake is encountered. A rapid exploration of Island Lake developed the fact that in periods of high water it discharges both ways. At its northern end there is a rapid drop toward Hudson Bay of 10 feet, extending over a distance of 500 feet. I tried in several ways to locate an outlet from Lake Opasataka through the height of land to discharge into Hudson Bay waters, but was unable to find any. The water level of Lake Oposataka was found to be 43.17 ft. below that of Island Lake, the elevation of which was 912.53. If it is the desire to keep all the water possible out of the Ottawa water-shed it would be a very simple matter to lower Island Lake by cutting out the rapids at the north end. This would be a comparatively small job and by doing

it the water which belongs to the north side of the height of land would be prevented from coming into Lake Opasataka if it were not required.

A very careful examination was made of all the creeks running into Lake Opasataka, each one being carefully followed to its source. They all show the same conditions, those on the west side of the lake having a fall between source and mouth of approximatively 35 feet while those on the east side fall only about 28 feet and vary in length from ½ to 15 miles. At the head of nearly all of them, small lakes are found which are generally surrounded by swamps and high hills farther back but are too small for any consideration in connection with a storage proposition.

The examination of Barriere-Opasataka basin was completed on Friday, June 10th. On Saturday, June 11th, camp was moved to the foot of Barriere Lake, bench marks being established down both lakes in convenient places and marked with white paint with the elevation and number of the mark, and on Monday, June 13th, camp was moved to the head of what is known as Taggarts Bay, which is the north east arm of Quinze Lake. From this point was carried on the examination of Rock Lake.

Rock Lake is a body of water lying almost immediately north of Quinze Lake. A map showing even the general outline of this lake cannot be found. The drainage area is not large, but the lake itself is a most excellent basin for the storage of a considerable amount of water. The lake itself is in a general shape of a letter "L", but if the water surface were raised it would be almost triangular in shape. The shores are steep and rocky in almost every direction except towards the north-east where it is swampy. The timber has been cut and burned all around this lake, there being only a small amount of young poplar and spruce which would be

No. 66.—Private Trading Post at head of Lake Opasataka. Height of land formerly occupied by Revillon Fur Co.

No. 67.—The "Swinging Hills" from north end of Lake Opasataka. The two hills in distance are on north side of summit between Ottawa River waters and Hudson Bay from Camp 4.

No. 68.—Outlet of Island Lake, showing head of rapid.

No. 69.—Foot of Portage at Outlet of Island Lake. First water draining to Hudson Bay.

No. 70.—Head of Taggart's Bay, Quinze Lake (Outlet of Rock Lake).

No. 71.—Lumberman's dam, Rock Lake (showing Granite outcrop).

No. 72.—Log chute in Lumberman's dam at outlet of Rock Lake.

No. 73.—Alternative dam site, Rock Lake.

in any way affected by an alteration in the water surface. At the outlet there is an old timber dam which raised the water about four feet. This was built about 18 years ago by Messrs. Bronson & Co. who lumbered along the lake. The watershed is comparatively small, there being a variation between high and low water of only about 3 feet.

On the completion of the work at Rock Lake, I moved the outfit back to our base of supplies at Klock's Depot where I put the canoes and tents into a state of good repair and received a new supply of groceries, etc., and left on Tuesday, June 21st, for an exploration of the Ottawa and Kenojevis Rivers. We arrived at the foot of Sturgeon Rapids on the Ottawa river above Lake Expanse that night, and in the morning transferred the elevation of the water surface from below the rapids to the Ottawa River above. The water surface of Lake Expanse was on that day 857.00 and the fall of the Sturgeon Rapids was determined to be 18.11 feet, making the elevation of the Ottawa River at the head of these rapids 875.11.

The distance from the head of the Sturgeon Rapids up the Ottawa River to the mouth of the Kenojevis River is approximately 14 miles and there is a fall in the river of 0.72 feet, making the elevation of the water of the Kenojevis at its mouth 875.83.

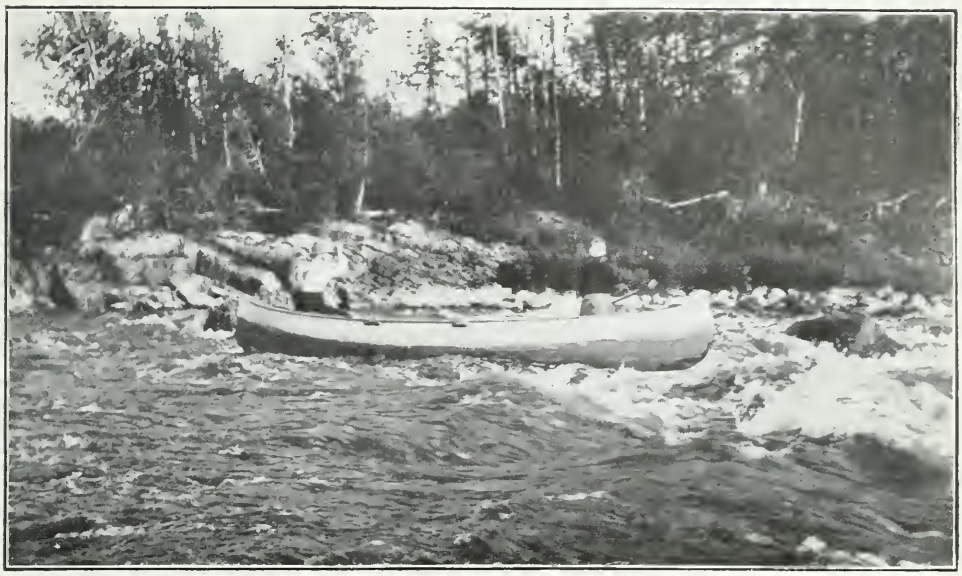
It will be noted that the Ottawa from the head of the Sturgeon Rapids to the mouth of the Kenojevis is extremely flat. This statement applies also to the land on each side of the river. It is low, swampy and wet and in some cases for a distance of 3 or 4 miles on each side of the river. There is a considerable growth of poplar, spruce and balsam on the banks which are flooded each year in the Spring. The elevation given is approximately the high water of 1910, the high water of 1909 being in many cases from 6 to 8 feet higher than this elevation, indicating an enormous flow for a short period in the spring.

No. 74.—Typical view of creeks draining into Kenojevis River. Very flat for miles back from the river.

The Kenojevis River is a stream running through low banks in many places from its junction with the Ottawa to a point about 14 miles from its mouth, at which place there is a small rapid with a lift of only 0.35 feet. This rapid is the outlet of what is known and shown on plan as Crooked Lake and would be the location of any dam put in for storage on Crooked Lake. A photograph is attached. From the rapid last spoken of through to the Windfall Rapid is a distance of approximately 25 miles and in this distance the river passes through several large swamps which are called lakes on the plan, there being a fall of only 0.70 feet over the entire distance.

The Windfall Rapid was reached on Saturday, July 9th, after having carried both levels and traverse line from the head of the Sturgeon Rapids and through the Kenojevis. This traverse line was carried into Turn Back Lake as the work progressed. There is a fall of 8.91 feet in the Windfall Rapids making the water surface above these rapids 885.69. At this point the high water of 1910 was found to have been 880.74 while that of 1909 was found to have been 884.50. Above the Windfall Rapids the river is without current and was assumed to be level until a point was reached where the river runs over a dyke of rock which crosses the country and over which a matter of 5.51 feet of elevation is used up. The next rapid of any importance is Island or Crooked Rapid which uses up 15.33 feet, making the water level of the river above it 906.43. The high water of 1910 which seems to be about normal reached an elevation of 908.26 while that of 1909 reached an elevation of 910.04.

The next rapid above Crooked Rapid is known as Brule or Cascade Rapid which has a fall of 26.16 feet. Almost immediately above Crooked Rapids are two pieces of swift water in which there is a fall of 0.40 feet, making the elevation of the water 932.99. The next rapid above is a small short dyke of rock which crosses the river at almost right angles. There is a difference in elevation between the foot and the head of 4.13 feet. The high water of 1910 at this point reached an elevation of 939.42 while that of 1909 was 940.34. From this point into Turn



No. 75.—Wonderful Rapids. Taking down the canoes—dangerous, but part of the day's work.

No. 76.—Running Crooked Rapids—much more dangerous.

No. 77.—Possible dam site at Crooked Lake, Kenojevis River.

No. 78.—Richmond's Rapid, "Height of Land" Mine, Kenojevis River, near Turnback Lake.

Back Lake there are two rapids, one at the Height of Land Mine which has a fall of 5.76 feet and another almost at Turn Back Lake which has a fall of 14.64 feet, making the elevation of the water surface 957.81. This is the elevation of Turn Back Lake as I found it on July 23rd.

Throughout its whole length the Kenojevis drains a clay country which is well covered with pulp wood but very little timber which could be called merchantable except as pulp. The banks are low as a general rule and except for a short distance are swampy. The river itself is very crooked, spreading out in many places to lakes and swamps. There are no points along its entire length that seem to me to be worthy of consideration for storage purposes, except Crooked Lake and Turnback Lake. I examined carefully all the creeks of any size discharging into this river, and there are a great many, and find the same conditions existing on all of them. They are extremely flat for a long distance back from the river, but invariably there are chutes rising thirty and forty feet as the hills are reached. I attach photographs of several of these creeks, together with the lakes at their head. I do not consider any of these lakes of sufficient area or drainage area to warrant any consideration as storage basins; they are too small.

Turnback Lake is situated very close to the height of land The map shows its area to be 48 square miles, which is approximately correct. The lake is surrounded on all sides for a great distance by low, swampy lands and the drainage area tributary to it is very large. The lake itself does not give the impression of being subject to extremely high water, there being a very small fluctuation between its normal condition and its flood condition. I am convinced, however, that this lake discharges a very large amount of water throughout the entire year without subjecting the river to serious floods. The high water of 1910 reached an elevation of 959.01, while that of 1909 reached an elevation of 960.71. This is a very small difference when the floods of 1909 are taken into consideration. I am convinced that the large amount of water which must have gone through this lake was taken up by the swamps and low land, leaving little indication of its volume owing to the increase in the area of the lake.

One of the tasks which I was to perform was to locate, if possible, some point where water from the south side of the height of land could be diverted in such a way that it would run to the north. This proved to be impossible at the head of Lake Opasatika; so I devoted considerable time to proving conclusively that it could be done by diverting water from Turnback Lake over the height of land and into Seals' Home Lake. The elevation of the water surface of Turnback Lake being 957.81, while that of Seals' Home was found to be 965.65, showing that Seals' Home Lake is 7.84 feet higher than Turnback. They are connected through by a swamp which drains both ways and in high water Seals' Home Lake, like Island Lake north of Lake Opasatika, discharges to the south as well as to the north. This swamp is very hard to get through and I could not locate the exact summit, but in any event this can be of but very small height, and I am strongly of the opinion that the water now discharging out of Turnback Lake can be turned over the height of land if required by raising Turnback Lake 10 feet without cutting through height of land. Surrounding Turnback Lake the timber is almost the same as that encountered all the way up the Kenojevis, being small poplar spruce and balsam in many places, excellent pulpwood but of small value as lumber.

After completing the examination of Turnback Lake I returned to the outlet of the Roger River, which drains out of the Big Roger Lake into the Ottawa River above Sturgeon Rapids. I passed up this river into the Big Roger Lake, which I find to be a long, comparatively narrow body of water with high rocky shores which are in many places covered with some timber, and which has a small drainage area. The elevation of the water in this lake is 901.87, and while the lake itself is capable of being raised to an enormous height I do not consider that the run off from its drainage basin would provide sufficient water to warrant the construction of two

No. 79.—Outlet of Lac des Isles, Kenojevis River, from the Lake.

No. 80.—Outlet Lac des Isles, looking up stream. Typical of all creeks draining into Kenojevis River.

No. 81.—Possible dam site Turnback Lake.

No. 82 —Beginning of Portage over height of land to Seals Home Lake.

No. 83.—On the portage to Seals Home Lake, 2 miles long.

No. 84.—Indians travelling Kenojevis River. Nine human beings and five dogs were in this birch bark canoe. Note cooking utensils on poles overhanging bow.

dams to hold it. These dams are necessary owing to the fact that this lake empties through two rivers, the Big Roger River, discharging into the Ottawa, and Little Roger River, discharging through Little Roger Lake into Quinze Lake. On my completion of this work I returned to the base of supplies at Klock's.

As a result of my trip I am led to the conclusion that the storage schemes worthy of consideration throughout this territory may be said to be only five:

1. A combination of Barriere Lake and Opasataka Lake.
2. Rock Lake—of doubtful value to present needs.
3. Crooked Lake, on the Kenojevis.
4. Turnback Lake.
5. Roger Lake—drainage area small—not of great value.

Maps furnished me show the areas of Barriere and Opasataka to be 41 square miles. I am convinced that this is wrong and that an area of 61 square miles would be much nearer the correct one. As noted before, this basin has high shores and I examined it with a view to storing twenty feet of water over the surface and above the high water line. There is no place that this amount will spill out. The dam for such a reservoir would be located at the head of the Barriere rapids; several photographs of this site are attached. The site is not a good one but is the only one that can be used. It is 1800 feet long and the water channels aggregate 145 feet. The foundation is fairly good, being granite on the west side and heavy clay on the east, under which will probably be found rock. I see no gravel or sand for concrete in close proximity to the dam site. By dredging out the rapid and lowering the structure an additional storage of probably 11 feet could be taken from the bottom of both these lakes, the water in Lonely River being at least that depth in every place at which it was sounded. An increase of twenty feet as proposed would probably increase the area 20 per cent and give a storage capacity of from 12 to 14 hundred square mile feet.

As intimated previously, Rock Lake is an excellent storage basin. The dam would be short and comparatively cheap. The foundation is solid rock, as shown in the photographs attached; there will be two fills necessary,—one 205 feet long and the other 175 feet long—and I would suggest raising the water 20 feet, as this amount can easily be stored without spilling out. The drainage area is, I believe, sufficient to fill the basin each spring. On June 16th, when I examined it, there was a discharge of about 275 cubic feet per second passing the old lumber mines dam at the foot of the lake, and when I saw it again in July, the amount was practically the same, indicating a good well sustained run off from this basin.

There was a proposal to build a dam at the head of the Sturgeon Rapids using the valley of the Ottawa as a storage basin. This would in my opinion be an unnecessary expense, as I am firmly convinced that all the storage necessary can be obtained by building a dam at the site at Crooked Lake, as shown in photograph attached. There is little doubt in my mind that a dam 30 feet high could be built on this site which would store at least 1,200 square mile feet of water from the Kenojevis, and if it was decided to raise the water that much it would not spill out at any point along the river. The site is an excellent one. The foundations are of rock and both gravel and sand can be found for concrete. The dam would be a short one, and owing to the nature of the river the construction cost would not be high.

At Turnback Lake the problem presenting itself is much different from any of the others. The area shown, 48 square miles, would probably be increased, if the water were raised twenty feet, by 75 per cent, and would doubtless provide storage for 1600 square mile feet, besides possessing the advantage of enabling the water to be thrown over to the north side of the height of land. Twenty feet would necessitate the building of a dam 498 feet long, with a water channel of 94 feet to fill. The site as shown in the photo is an excellent one, being rock in the river channel and probably rock on the shore ends, but this could not be ascertained as

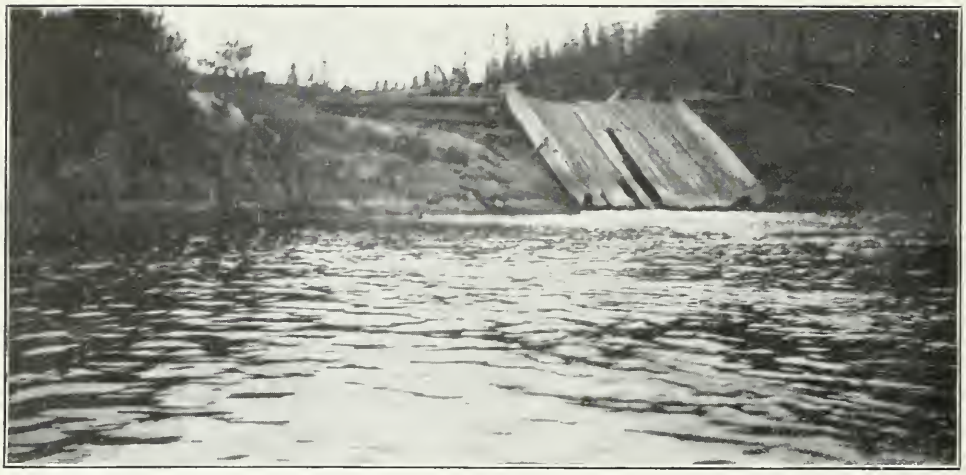
No. 85.—Timber chute, outlet of Big Roger Lake. Possible dam site.

No. 86.—Same from above.

LOOKING WEST.

LOOKING EAST.

No. 87.—Possible dam site Big Roger Lake, showing old lumberman's dam and granite foundation. Both views taken from same place.



No. 88.—Lumber dam at outlet of Big Roger Lake.

No. 89.—Same from upstream side

No. 90.—Log jam at outlet of Little Roger Lake.

No. 91.—Log jam on Little Roger River.

PUBLIC WORKS, CANADA
OTTAWA RIVER STORAGE
Map shewing
PROPOSED KAKABONGA RESERVOIR
1911
Ottawa River
Big Stone Lake
Bouchette Lake
Barrière Lake
PROPOSED DAM
Washkega Lake
Island
Bronson
Gouin Island
Travers Lake
PROPOSED DAM
Rapid Lake
Big Poignan Lake
Dam Lake
Larouche Lake
Big Lake
L. Poignan Lake
Kawasheamuka Lake
Bark L.
Trout Lake
Card Bay
Hunter
Moose Lake
Wolf Lake
Modawastagan Lake
Island Lake
Windfall Lake
Pike Lake

B del.

the clay was quite heavy and we were not prepared to dig test pits. There is no gravel for concrete in the immediate vicinity but in several places along the lake fairly good gravel may be obtained at a short distance from the shore. The Roger Lake, as I have stated previously, I do not consider a first class storage proposition. The map shows the area to be ?? square miles, and I question if the basin delivers enough water each year to raise the surface twenty feet. The two dams necessary render the advantages to be gained by having this basin in the storage area almost prohibitive, as their cost would probably exceed the value of the advantages gained.

Exploration of Gatineau River and Kakabonga Basin.

J. L. DANSEREAU, ASSISTANT ENGINEER.

In connection with the project of conserving as much water in what is called the Kakabonga basin as possible, I started a reconnaissance of Kakabonga Lake and its large tributaries.

Owing to the late date and the early freezing up of the lakes and streams in that Northern district, I did not entirely cover the ground. I obtained, however, sufficient data to establish the fact that practically the total of the Spring outflow from this basin could be stored at a reasonable expenditure. The reservoir should be large enough to retain the Spring outflow of the drainage area, and also a considerable amount of water can be diverted from the main Ottawa river.

For this purpose Kakabonga lake is ideally situated, as it forms a connecting link between the head waters of the Gatineau and the Ottawa. It has an outlet to Barriere Lake on the Ottawa, and another via the Gens de Terre River to the Gatineau.

Kakabonga lake includes on a common level Kakabonga proper, Washekega lake, half of Barriere lake, Rapid lake, and Bark lake, including Carp bay. Draining into it are Wolf, Madawastagewan, Pike, Island, Awashemameka, Trout and Moose Lake.

North West of Kakabonga and 18 inches lower is the Western half of Barriere Lake and a forty-five mile level stretch of the main Ottawa river, which includes Bouchette and many small lakes.

There is at present a dam 3 feet high on each outlet of Kakabonga lake. The one built across Barriere lake narrows could be dispensed with, and replaced by one across the main Ottawa below Barriere lake. This will make the area of the new lake 100 square miles divided as follows:—

Washekega from Barriere present dam to Narrows between Washekega and Kakabonga	9	sq. miles.
Kakabonga lake from Narrows to Bark Lake	40	" "
Rapid lake west of Bronson & Gouin Island	12	" "
Bark lake including Carp bay	15	" "
Barriere lake, lower part	9	" "
45 miles of the main Ottawa River (average width 800 ft.)	7	" "
Bouchette lake including Stone lake	8	" "
Total	100	sq. miles.

Every foot rise of surface will store 100 square mile feet of water.

The drainage area is 1000 square miles upon which 30 inches of rain falls, but a good part evaporates leaving probably 18″ to run into the lake, so that a season would yield 1000 x 1½ feet, or 1500 square miles by one foot of storage. Two dams 15 feet high could store all the water dammed below Barriere, it forms a supply that could fill the reservoir to its highest capacity. Kakabonga surface can be raised 20 feet without great damage and will then furnish (100 x 20) 2,000 square mile feet of storage. The main Ottawa above Barriere, draining 1,000

No. 92.—Gatineau River below Baskatong Bridge.

square miles will provide enough water to more than fill the reservoir and this suggests a further system of storage among the tributary lakes. The following table shows the available areas of Kakabonga and its surrounding lakes:—

Lakes	Area Square Miles	Number of dams required	Possible rise of surface above low water in feet	Storage square mile feet
Kakabonga	100	2	20	2,000
Wolf	10	1	10	100
Madawastagewan	7	2	10	70
Island and Pike	15	1	10	150
Awashemameka	9	1	5	45
Moose	15	1	12	180
Total	156	8		2,545

Of course this capacity is really larger on account of the lakes spreading by the rise of surface. I have partly determined the increase in size and also the damage that will be done.

On Bark Lake the Gilmour and Hughson depot farm is situated and a rise of even 3 feet above low water will destroy practically the whole 18 acres and some 13 log buildings. About 1,200 bushels of potatoes were raised on this property this year, and two miles further north there is a hay farm of about equal size which will not be affected by a 20 foot rise. Besides these places no suitable agricultural land was seen around Bark Lake. Probably $15,000 would be asked as compensation for the area flooded.

With a surface raised 20 feet, Kakabonga reservoir could be emptied through Deschenes bay at the east end of Bark lake. The flow would be by way of Hunter Lake and Seize river, and would facilitate log driving and create a water power of 450 foot fall. Fifty per cent. less water would be required for the log drive, which would be shortened by fifty miles and the Maline rapids would be avoided. This gain to the lumber industry will amply offset the damage by flooding. A similar outlet could be had through Seize bay and also through Carp bay to the Seize lake. Lake Seize is 15 feet higher than the present Kakabonga, and Hunter lake 1 foot lower than Seize lake. A dam 200 feet long and 6 feet high at the east end of Hunter lake would retain the raised level proposed for Kakabonga and add 4 square miles to the general surface.

Between Kakabonga and Rapid lake stand two large islands called Bronson and Gouin respectively. Gilmour and Hughson's best timber limits are on these islands and the damage to timber will not amount to much, as little good timber grows at an elevation less than 20 feet above low water level. There will, however, be so many lakes and marshes created that the cutting of the logs will be impractical during the autumn. Timber of all size covers these islands and 30 or 40 years would elapse before the smallest would be fit to cut.

At the north end of Kakabonga is a creek, which is said to run into the Gens de Terre river 3 miles below the proposed dam. However, a dam about 100 feet would close this outlet.

Six miles south of the Long Narrows on Rapid Lake, Gilmour and Hughson have a good farm of nearly 60 acres of high land. At the foot of the opposite bay, Wagous creek runs down to Barriere lake which it enters 500 feet from the present dam. The ground is very low on both sides, especially the west side.. So a rise of a few feet would flood for miles, till a range of hills is met, which extends to the proposed site for the new dam. Whether there is a pass through this range of hills which will allow a storage of water escaping is yet to be found.

One mile above the present dam is a Hudson Bay Company's post. A couple of their store houses would be drowned by a 6 foot rise, but $500 should cover the damage.

Barriere lake shores are fairly high on the West side, but low on the East up to Bouchette lake, where the sides are then high all around. The raised surface of Kakabonga would extend 25 miles eastward into Bouchette lake and about 25 miles further up the Ottawa.

Little is known about Kamishigama lake which flows into Bouchette, but it is about 10 feet higher than Lake Bouchette and there is no flow of water between it and the Kapitachouan river as wrongly shown on the map.

Above Bouchette the present map is partially inaccurate as regards the width of the Ottawa river, there are many small lakes that are not shown. The ground is low on both sides, especially on the west side and at some places the first hills are several miles away. How far they are and the distance that the raised surface would extend up the four rivers, which empty into the main Ottawa above Bouchette, time did not admit of ascertaining.

On the accompanying map the flood contour is indicated by a red line. This reservoir would require two dams and perhaps four. The area of the lake will be enlarged about one third.

The second reservoir to be considered is Wolf lake. Its outlet by Wolf river will alone need to be closed. A dam 5 feet high already exists. A rise of 10 feet could be maintained by a dam 10 feet high and 600 feet long. A small damage will result as only about 1 square mile will be drowned altogether, mostly spruce timber. The area of reservoir would be about 10 square miles.

The third reservoir will be in Madawastagewan lake (lake flowing two ways), which drains North to Wolf lake and South to Windfall lake and River Desert. It receives water from Island and Pike lakes. There are three dams about 6 feet high on the three outlets and an additional rise could be added. The dam on the creek flowing into Wolf lake is 90 feet long, without a sluiceway, it raises the surface till a flow to Windfall is attained. The dam on the outlet to Windfall is 100 feet long with two 10 foot gates. Owing to flat shores a higher dam would have to be built 300 feet further up with a length of 300 feet.

The fourth reservoir will consist of Island and Pike lakes. They enter Madawastaga by the same stream and are of the same elevation, so that one dam suffices to raise both lakes. The present dam is 25 feet long and 6 feet high. It could be raised to 10 feet. It is possible that a higher elevation would cause the water to drain into the Coulonge basin.

The late date prevented me visiting Awashemameka and Moose lakes, but from Mr. Goodspeed's report, it is known that these lakes could be raised 5 and 12 feet respectively.

As a conclusion six reservoirs could be formed in the Kakabonga basin of an actual area of 156 square miles and a probable one of 186.5 square miles and will store 3,265 square mile feet of water. This is shown on the following table:—

Lakes	Actual area square miles	Enlarged area square miles	Possible rise of surface above low water level in feet	Area raised 1 foot square mile	Number of dams	Cost and damage
Kakabonga.....	100	130	20	2000 or 2615	2 or 4	$100,000
Wolf.....	10	10	10	100 or 110	1	6,000
Madawastagewan...	7	7.5	10	70 or 75	2	8,000
Island and Pike.....	15	15	10	150	1	2,000
Awashemameka.....	9	9	5	45	1	.....
Moose.....	15	15	12	180	1	5,000
Total.....	156	186.5		3,265	8 or 10	$121,000

No. 93.—Gens de Terre River, looking up towards first chute.

Land Damages.

The raised surfaces of the reservoirs flood some property even in the present undeveloped state of the district. The most important are at the head of Lake Timiskaming, especially near New Liskeard. Mr. A. E. Cross, Valuator, has already made some examinations of this district and Mr. H. H. Robertson, P.L.S., has prepared plans of each individual case showing the acreage affected. Mr. Cross has also begun work at Quinze Lake and part of the land inundated there has been determined by survey.

So far no damages have been paid to individuals but the corporation of Haileybury was granted $3,710 to make alterations to the water supply and to the sewerage tank outfit. The surface of Lake Timiskaming maintained at high level exposes the water supply pump house to wave attack, so that stray logs and other flotsam may breach the walls. The electric pump is also affected and had to be raised.

The low level of the reservoir in springtime necessitated lengthening the outlet pipe from the septic tank.

Next Work to be Undertaken.

The restraining of the Gatineau, basin area 9,000 square miles, will likely be undertaken in the near future. Last year, a survey was made up to Kakabonga lake, the most promising reservoir site, and the report is attached. At present, a heavy flood pours down the Gatineau in May, which meets the main river and increases the currents and inundations from Ottawa down to Hawkesbury. The Gatineau,

Lievre and Rouge draining 15,000 square miles, nearly 30% of the whole watershed discharge rapidly and all in the same period. The result is an additional gorging of the main river in May, its flood time, and the water is wasted, so that navigation all the way to Montreal is hampered each autumn.

Kakabonga will furnish a reservoir of 100 square miles capable of storing a layer 20 feet thick. There will be an area of 1,000 sq. miles held off the Gatineau and about 2,000 square miles of the head waters of the Ottawa will be gathered. This will lessen the flood flow toward Grand Lake Victoria and Quinze-Expanse and conserve a supply for autumn and winter.

Two valuable water areas, the Petawawa and Madawaska, totalling 5,000 square miles, with many lakes, bringing in the first supply of snow water, remain to be further investigated.

The Low Stage of the Ottawa River, March, 1911.

S. B. JOHNSON, ASST. ENGR.

The diagram page 184 shows the flow from the Quinze river into Timiskaming lake on the 25th of February to be only 4,000 cubic feet per second. Later records are not yet available, but taking the decrease in flow as 80 cubic feet per second per day as the diagram shows, the present flow would be about 3,000 cubic feet per second.

A run off of 0.28 cubic feet per second per square mile has been taken as the lowest our north country would yield. The above flow reduces it to 0.24 cubic feet per second per square mile. This low rate also corresponds to the flow at the Chaudiere to-day.

The present flow out of Timiskaming is 7,500 c.f.s. made up of 4,000 c.f.s. flowing from Kipawa and 3,000 c.f.s. from the Quinze. The present opening at the foot of Timiskaming lake is amply large enough to allow the natural flow of the river to pass. This is proved by the fact that the surface of Timiskaming has remained practically constant for the last four days—8th March to 10th March.

A current meter measurement was made of the Madawaska river on the 21st of February last, 750 cubic feet per second was flowing, this has continued the same to date. The river has never been known to go as low.

The Petawawa river is in a similar condition. The Bonnechere and Mississippi rivers are almost dry.

The North tributaries are all unusually low with the exception of the Coulonge. The lumbermen are not cutting on the latter this winter, hence the dams on the upper lakes are all open wide.

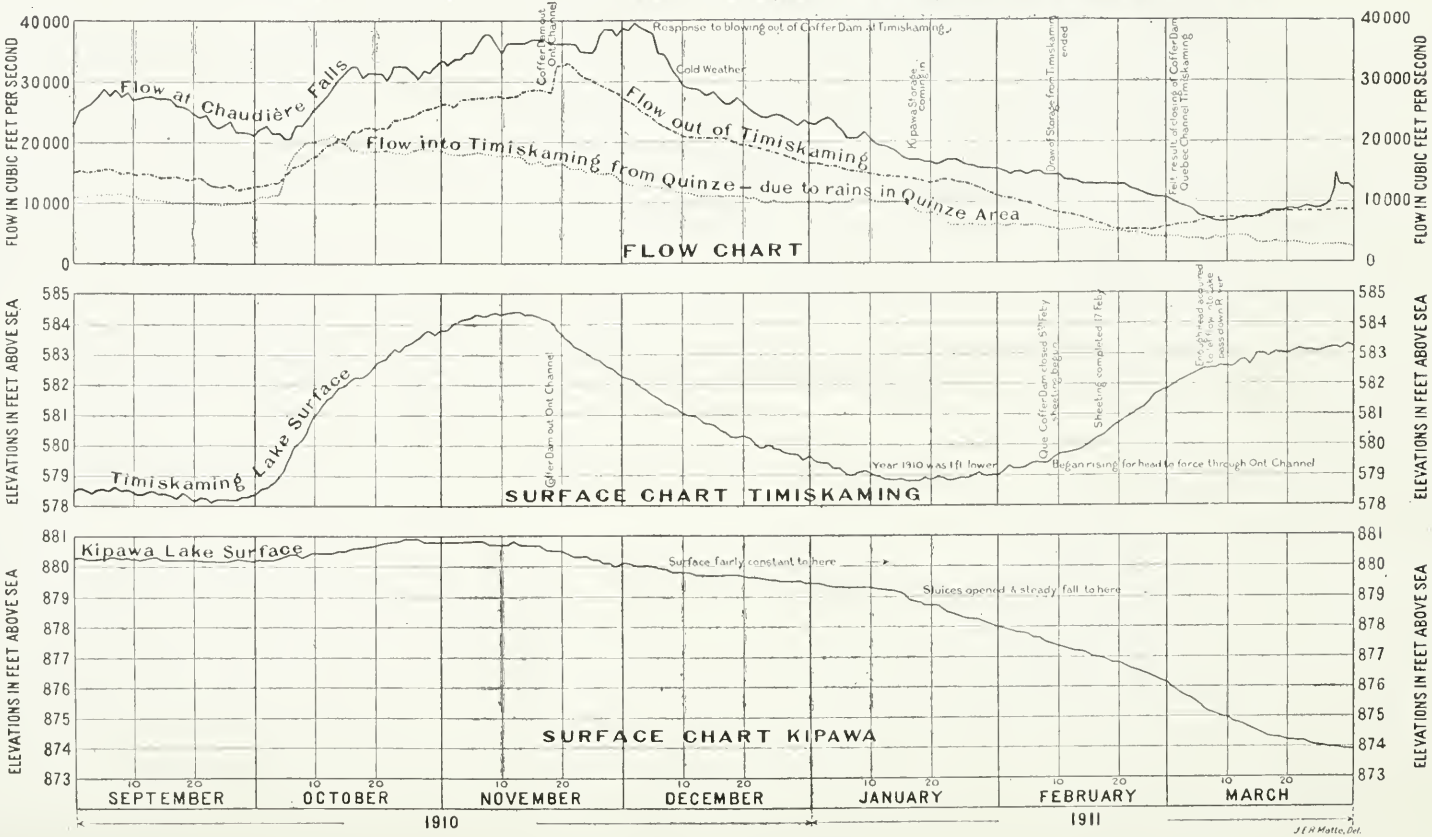
A current meter measurement made of the Gatineau river on the 13th February last, gave a discharge of only 3,030 cubic feet per second, this also shows that the north country as well as the south is extremely dry. The average low water flow at this season of the year being 5,000 cubic feet per second for the Gatineau.

The first diagram shows the flow for Quinze into Timiskaming which has been unobstructed by dams of any kind. It will be noticed that the Quinze shows a sharp autumn increase of flow, 4th October to 10th October,—then a gradual fall to 15th January, when it decreased 40% in 8 days.

This of course suddenly checked the flow through Timiskaming, and an unprecedented drop through the river would have followed had not storage from Kipawa been let in.

From the last diagram it will be seen that the Kipawa surface remained constant through December and up to 12th January. Then the sluices were opened and a steady fall of surface took place the 25th February, representing an increased outflow descending to Timiskaming and down the river.

DIAGRAMS SHOWING LOW STAGE OTTAWA RIVER March 1911



The second (middle) diagram shows the autumn rise on Timiskaming about 1st October culminating 5th November. The surface remained constant till 18th November, then fell slightly till 17th November, when the Ontario cofferdam was blown out. A greatly increased flow immediately took place giving extra flow from the layer of storage that had accumulated on Timiskaming. The lake was a foot higher in January, 1911, than in January, 1910, on this account.

To complete the Timiskaming dam, however, a cofferdam had to be built across the Quebec channel. This checked the outflow and caused the lake to rise about 31st January.

Returning to the first (upper) diagram the Chaudiere flow shows an increase during first week of September due not to the flow above Mattawa, but to autumn rains over the tributaries below Mattawa. Further rains and the opening of the Timiskaming cofferdam increased the flow at Chaudiere till 3rd December when cold weather caused a decided reduction till 10th December after which a steady increase is noticeable till 20th January. The reduction of flow was then much less till end of February, notwithstanding a sharp falling off in the supply for Quinze. This was due to the fortunate fact that there was storage available and given off Kipawa.

The ground water in the Ottawa basin has been greatly depleted this season and the low water is directly attributable thereto.

Analyses of Ottawa River Water.

DR. BRYCE, M.A.

Although during the early winter of 1910 the Ottawa water was dark colored and locally infected, still, under ordinary circumstances, it shows remarkable purity.

The following tables were kindly prepared by P. H. Bryce, M.A., M.D., who for many years has inspected the water supplies of Ontario:—

TABLE showing results of Analyses of Ottawa river water above Chaudiere Falls, number of bacteria and presence (+) or absence (—) of bacillus coli, also parts of chlorine in a million parts of water.

NOTE.—Normal chlorine of the River water is 1.5 to 2 parts per million.

Date			No. of Bacteria per c. c.	Bacillus coli	Chlorine per million
		1909			
December	20		250	not taken	not taken
"		2 samples	150	" "	" "
"		3 samples	95	" "	" "
"	28		28	" "	" "
		1910			
January	7,	1st and 2nd	65	" "	" "
		1st sample	220	" "	" "
		2nd sample	140	" "	" "
		3rd sample	380	" "	" "
"	10		85	" "	" "
			90	" "	" "
"	28		115	" "	" "
"	28		24	" "	" "
"	28		35	" "	" "
"	28		32	" "	" "
February	8		3070	(+)	2
"	8		1470	(—)	2
March	16		950	(—)	4
			1600	(+)	4
"	15		135	not taken	not taken
			155	" "	" "
"	31		220	" "	" "
			440	(—)	2
			190	(+)	2
April	12		286	not taken	not taken
			152	(—)	2
"	19		110	not taken	not taken
			76	(—)	2
"	26		32	not taken	2
			61	" "	2
May	3		550	(—)	2
			90	(+)	2

The above results are better appreciated when compared with the raw Thames river, Ontario, which showed 2,385, 1,200 and 110 bacteria in three days in October, and 9,635, 10,570 and 13,715 in May. This water is, of course, treated before use.

The Ottawa watershed is sparsely populated, having only 3 or 4 persons per square mile, with many lakes that act at settling basins. It is lacking in lime formations which yield soluble bicarbonates that precipitate the vegetable albumens from swamps. The carbonaceous matter of the Ottawa is not wholly precipitated or sedimented notwithstanding the many lakes, and hence lends to the water a slightly brown color.

In fifty samples, extending over eighteen months,

20	samples	showed	under	100	bacteria	per	cubic	centimetre.
10	"	"	"	200	"	"	"	"
5	"	"	"	300	"	"	"	"
3	"	"	"	400	"	"	"	"
3	"	"	"	500	"	"	"	"
1	"	"	"	500—1000	"	"	"	"
3	"	"	"	1000—2000	"	"	"	"
3	"	"	"	2000—4000	"	"	"	"

Such a low count and small variation, month after month, as the Ottawa shows is rare. The organic matter is nearly as low as in samples taken several miles out in the Great Lakes, and remarkable to relate is as low during Spring floods as in summer time.

The following are the results of chemical analyses taken in 1909:—

9 December	albumenoid ammonia 0.13	parts per million.
14 January	0.18	" " "
1 March	0.15	" " "
13 April	0.11	" " "
10 May	0.08	" " "
14 June	0.14	" " "
Lake Michigan	0.12	" " "
Niagara Falls	0.09	" " "
Lake St. Clair	0.13	" " "
Lake Ontario, Toronto	0.09	" " "

It must be stated, however, that even in samples, of such a naturally clean water, showing less than 100 bacteria per cubic centimetre, bacillus coli was detected, which always indicates possible danger in a drinking water. Sewage of course always contains B. coli but the general presence of intestinal germs in river water is often due to the excreta of farm animals along the shores. This condition has been found below Pembroke, Ottawa, and in Oka lake, below the village.

Drainage Area of Ottawa River.

BY SUBDIVISIONS.

	Area of Basin square miles	Total area drained square miles
Kakabonga reservoir	1,000	3,000
Grand Lake Victoria	2,500	5,500
Quinze and Expanse reservoir	5,800	11,300
White River	1,800	.....
Montreal River	2,800	.....
Kipawa Lake reservoir	2,100	.....
Timiskaming reservoir	7,700	19,000
Mattawa River	900	.....
Ottawa Valley to Mattawa	.....	20,700
Ottawa Valley to Deux Rivieres	.....	20,100
Ottawa Valley to Rocher Capitaine	.....	21,200
Dumoine River	1,500	.....
Ottawa Valley to Des Joachims	.....	23,100
Petawawa River	1,600	.....
Ottawa Valley to Waltham	.....	26,100
Black River	1,000	.....
Coulonge River	1,800	.....
Ottawa Valley to Portage du Fort	.....	29,300
Bonnechere River	900	.....
Madawaska River	3,200	.....
Mississippi River	1,400	.....
Ottawa Valley to Chats Falls	.....	35,000
Ottawa Valley to Chaudiere Falls	.....	35,600
Rideau River	1,500	.....
Gatineau River	8,100	.....
Ottawa Valley to Besserer Metering Station	.....	45,500
Du Lievre	4,000	.....
Nation River	1,400	.....
Rouge River	1,800	.....
Ottawa Valley to Hawkesbury	.....	54,300
North River	700	.....
Ottawa Valley to foot Oka Lake	.....	55,700
Ottawa Valley to foot Montreal Island	.....	56,000

PRINCIPAL RIVERS COMPARED WITH OTTAWA.

Rivers	Drainage Area in sq. miles	Length
Ottawa	56,000	675
EUROPE:		
Volga	593,000	2,400
Danube	320,000	1,800
Don	186,000	1,100
Dnieper	198,000	1,100
Rhine	33,000	800
Elbe	55,000	700
Rhone	35,000	600
Tagus	30,000	500
Po	27,000	500
Thames	6,000	200
ASIA:		
Yenisei	1,180,000	3,000
Amur	807,000	2,800
Yang-tse-kiang	690,000	2,900
Hoangho	387,000	2,600
Indus	360,000	2,000
Ganges	588,000	1,700
AFRICA:		
Nile	1,293,000	3,700
Congo	1,540,000	2,900
Niger	900,000	2,600
Zambesi	550,000	1,700
Orange	270,000	1,100
AMERICA:		
Mississippi	1,286,000	4,200
Amazon	2,230,000	3,600
St. Lawrence	565,000	2,400
La Plata	995,000	2,300
Mackenzie	656,000	2,200
Rio Grande	233,000	1,700
Orinoco	430,000	1,400
Columbia	298,000	1,200
AUSTRALIA:		
Murray	270,000	1,600

PRINCIPAL LAKES.

Lake	Area in square miles	Greatest depth in feet
EUROPE:		
Ladoga	7,000	730
Onega	3,300	400
Wener	2,400	290
Peipus	1,400	50
Wetter	800	400
Plattensee	240	30
Geneva	230	1,000
Constance	210	830
Neagh	150	100
Lomond	30	630
ASIA:		
Caspian	166,000	4,000
Aral	26,000	220
Baikal	13,000	4,700
Balkash	8,000	80
Van	1,400	300
Dead Sea	350	1,200
AFRICA:		
Victoria	26,500	620
Tanganyika	14,000	2,000
Chad	10,500	20
Nyasa	10,200	700
AFRICA—(Continued):		
Rudolf	4,000	.....
Bangweolo	2,000	.....
Albert	1,800	.....
AMERICA:		
Superior	32,000	1,000
Michigan	22,500	990
Huron	22,000	900
Great Bear	12,000	.....
Great Slave	10,000	.....
Erie	10,000	270
Winnipeg	9,300	.....
Ontario	7,300	740
Nicaragua	3,700	260
Titicaca	3,300	930
Great Salt Lake	2,000	60
Temiskaming	110	.....
Kipawa	120	.....
Quinze	150	.....
AUSTRALIA:		
Eyre	4,000	.....
Gairdner	3,000	.....
Torrens	2,400	.....

Power Possibilities.

D. H. PHILIP, ASST. ENGINEER.

Public Works Department.

Under the present conditions along the Ottawa river, there are about two million electrical horse power for which there is no market, as Ottawa uses only 35,000 H. P., and Montreal 75,000 H. P. Large increases of its use are expected however and the future is being discounted.

House heating by electricity will be made economical and domestic uses largely increased. Washing, ironing, cooking, etc., and the use of motors for pumping water and various farm work requirements will increase, which will be tantamount to a number of small factories in the consumption of power.

It is proposed to sell electric current by the year, on a half horse power or horse power basis, for domestic uses. Thus, work of various kinds will be done by day and lighting at night, rendering the output of power houses more even and lessen the small loads during the day time, so that the machinery provided for the rush hours in the evening can be kept remunerative all day. The Ontario Hydro-Electric Commission's policy will popularize the use of electric power and extend its application.

With regard to great industries which will consume large blocks of power attention is directed to improvements in metal smelting by electric current, and the likelihood that the method will become a commercial success. The extraction of nitrogen from air now consumes large amounts of power in Norway and Sweden, and the power belt from Labrador to Lake Superior may be expected in like manner to be the power house of America. A consideration of the power possibilities in the Ottawa Valley is therefore not out of place especially as the same works that create a great navigation scheme also create extensive water powers.

If the storage dams on the Upper Ottawa river were built, the following list of powers would be increased to the amounts shown in the last three columns.

TABBL OF APPROXIMATE INCREASE IN POWER CAUSED BY THE REGULATION OF THE UPPER OTTAWA RIVER.

Name of Power Site	Distance from Montreal in Miles	Drainage Area in sq. miles	Fall in feet		Maximum discharge c. f. s. 1905.	Maximum discharge c. f. s. 1909	Low Water Development Natural Conditions.					Regulated Low Water Development				
			Low Water	High Water			Discharge in c. f. s.	Effective Head in ft.	Horse Power			Discharge in c. f. s.	Effective Head in ft.	Horse Power		
									Theoretical	Turbine Shaft	Electrical Generators			Theoretical	Turbine Shaft	Electrical Generators
Carillon	49.5	54507	.....	.....	146000	260000	17400	13.5	26650	21300	19300	33000	13.5	50625	45563	36450
Chaudiere	126.8	34623	.....	.....	92000	158000	11000	.....	.....	.....	.....	25000	.....	.....	.....	.....
Chats	151.8	33975	49.2	48.9	88000	155000	10700	48.0	58270	46500	43300	24700	48.0	134727	121254	97003
Des Joachims	265.6	22148	27.0	30.0	52000	122000	7860	35.0	31211	24968	22740	20300	35.0	80739	72665	58132
Rocher Capitaine	283.8	20237	42.5	42.0	46000	112000	7560	59.0	50600	40500	38400	20000	59.0	134091	120682	96546
Deux Rivieres	296.6	20122	15.0	13.0	45600	111000	7550	15.0	12850	10280	9360	20000	15.0	34091	30682	24546
Mattawa Rapids to Mountain Rapids	320.0	19660	36.0	.....	51000	101000	7350	36.0	30068	24054	21649	18000	36.0	73636	66272	53018
Long Sault Rapids	351.0	17839	51.0	.....	51000	101000	7350	54.0	45102	36082	32474	18000	51.0	110454	99409	79527
Devils	430.0	10293	76.0	.....	45000	79000	3000	76.0	25909	20727	18654	10200	76.0	88091	79282	63426
Islands	435.3	.....	74.0	.....	45000	79000	3000	74.0	25227	20182	18164	10200	74.0	85773	77196	61757
Ka-ka-ke	439.0	.....	120.0	.....	45000	79000	3000	120.0	40909	32727	29454	10200	120.0	139091	125182	100146

At present, there are three large storage reservoirs being created on the Upper Ottawa river, viz., Timiskaming, Kipawa and Quinze. The method of their discharge will give considerable increase in power during the low water season. The following tables show the way these reservoirs will drain out during a maximum year.

MAXIMUM YEAR

Minimum Regulated Discharge from Timiskaming, 24,100 c. f. s.

Month	Flow c. f. s.	Amount over 24,100 c. f. s.	Amount under 24,100 c. f. s.	Making Storage sq. mile ft.	Using Storage sq. mile ft.	Remarks
April	13.100	.....	11.000	.....	1.024	
May	63,100	39,000	.....	3,747	.....	
June	76,000	51,900	.....	4,824	.....	2,470 sq. mile ft. wasted to Ottawa river.
July	34,900	10,800	.....	1,036	.....	901 do
August	26,100	2,000	.....	193	.....	251 do
September	22,700	.....	1,400	.....	130	
October	21,400	.....	2,700	.....	251	
November	21,800	.....	2,300	.....	213	
December	18,200	.....	5,900	.....	567	
January	14,200	.....	9,900	.....	967	
February	7,800	.....	16,300	.....	1,414	
March	8,000	.....	16,100	.....	1,546	
				9,800	5,088	

MINIMUM REGULATED DISCHARGE AT KIPAWA, 3,600 c. f. s.

Month	Flow c. f. s.	Amount over 3,600 c. f. s.	Amount under 3,600 c. f. s.	Making storage sq. mile ft.	Using storage sq. mile ft.	Remarks
April	1,500	.....	2,100	.....	196	
May	7,000	3,400	.....	326	.....	
June	11,100	7,500	.....	697	.....	
July	5,000	1,400	.....	134	.....	
August	3,000	.....	600	.....	58	
September	2,700	.....	900	.....	83	
October	2,600	.....	1,000	.....	93	
November	2,500	.....	1,100	.....	102	
December	2,100	.....	1,500	.....	144	
January	1,600	.....	2,000	.....	192	
February	1,100	.....	2,500	.....	217	
March	600	.....	3,000	.....	288	
				1,157	1,177	

MINIMUM REGULATED DISCHARGE FROM TIMISKAMING IMMEDIATE WATERSHED, 7,200 c.f.s.

Month	Flow c. f. s.	Amount over 7,200 c. f. s.	Amount under 7,200 c. f. s.	Making storage sq. mile ft.	Using storage sq. mile ft.	Remarks
April	4,100	.....	3,100	.....	289	
May	21,100	13,900	.....	1,335	.....	
June	9,400	2,200	.....	204	.....	
July	4,900	.....	2,300	.....	221	
August	8,100	900	.....	87	.....	
September	6,700	.....	500	.....	46	
October	5,600	.....	1,600	.....	149	
November	6,800	.....	400	.....	37	
December	5,800	.....	1,400	.....	134	
January	4,600	.....	2,600	.....	250	
February	1,000	.....	6,200	.....	538	
March	4,600	.....	2,600	.....	249	
				1,626	1,624	

MINIMUM REGULATED DISCHARGE AT QUINZE, 16,500 c. f. s.

Month	Flow c. f. s.	Amount over 13,300 c. f. s.	Amount under 13,300 c. f. s.	Making storage sq. mile ft.	Using storage sq. mile ft.	Remarks
April	7,500	.....	5,800	.....	540	
May	35,000	21,700	.....	1,938	.....	
June	55,500	42,200	.....	2,993	.....	2,931 sq. mile ft. wasted to Timiskaming
July	25,000	11,700	.....	1,122	.....	1,122 do
August	15,000	1,700	.....	164	.....	164 do
September	13,300	.....	.....	.....	.....	
October	13,200	.....	100	.....	9	
November	12,500	.....	800	.....	74	
December	10,300	.....	3,000	.....	288	
January	8,000	.....	5,300	.....	509	
February	5,700	.....	7,600	.....	672	
March	2,800	.....	10,500	.....	1,004	
				6,197	2,556	

MAXIMUM YEAR.

TIMISKAMING—KIPAWA—QUINZE RESERVOIRS.

Minimum Regulated Discharge Conditions:—Kipawa, 3,600 c.f.s., Timiskaming Immediate Watershed 720 c.f.s., Quinze 13,300 c.f.s. Timiskaming, Total 24,100 c.f.s.

Month	Reservoirs						End of Month			Remarks
	Kipawa		Timiskaming Immediate Watershed		Quinze					
	Making storage sq. ml. ft.	Using storage sq. ml. ft.	Making storage sq. ml. ft.	Using storage sq. ml. ft.	Making storage sq. ml. ft.	Using storage sq. ml. ft.	Storage in Kipawa sq. ml. ft.	Storage in Timisk. sq. ml. ft.	Storage in Quinze sq. ml. ft.	
April	.....	196	.....	289	.....	540	Empty	Empty	Empty	
May	326	.....	1335	.....	1938	.....	326	1335	1938	
June	697	.....	204	.....	2993	.....	1023	full 2000	full 2000	2931 sq. mile ft. wasted to Timiskaming. 2470 sq. mile ft. wasted to Ottawa River.
July	134	.....	.....	221	1122	.....	1157	full 2000	full 2000	1122 sq. mile ft. wasted to Timiskaming. 901 sq. mile ft. wasted to Ottawa River.
August	.....	58	87	.....	164	.....	1099	full 2000	full 2000	164 sq. mile ft. wasted to Timiskaming. 251 sq. mile ft. wasted to Ottawa River.
September	.....	83	.....	46	.....	.....	1016	1954	full 2000	
October	.....	93	.....	149	.....	9	923	1805	1991	
November	.....	102	.....	37	.....	74	821	1768	1917	
December	.....	144	.....	134	.....	288	677	1634	1629	
January	.....	192	.....	250	.....	509	485	1384	1120	
February	.....	217	.....	538	.....	672	268	846	448	
March	.....	288	.....	249	.....	1004	Empty	Empty	Empty	

The following tables show the way the Timiskaming, Kipawa and Quinze reservoirs will drain out during a minimum year.

Minimum Year

Minimum Regulated Discharge at Timiskaming, 18,000 c. f. s.

Month	Flow c. f. s.	Amount over 18,000 c. f. s.	Amount under 18,000 c. f. s.	Making storage sq. mile ft.	Using storage sq. mile ft.	Remarks
April	11,300	.....	6,700	.....	624	
May	39,200	21,200	.....	2,037	.....	
June	34,500	16,500	.....	1,533	.....	
July	21,600	3,600	.....	345	.....	
August	16,400	.....	1,600	.....	155	
September	13,100	.....	4,900	.....	456	
October	11,600	.....	6,400	.....	594	
November	12,400	.....	5,600	.....	520	
December	13,000	.....	5,000	.....	480	
January	14,000	.....	4,000	.....	384	
February	13,500	.....	4,500	.....	390	
March	8,200	.....	9,800	.....	941	
				3,915	3,920	

Minimum Regulated Discharge at Kipawa, 2,100 c. f. s.

Month	Flow c. f. s.	Amount over 2,100 c. f. s.	Amount under 2,100 c. f. s.	Making storage sq. mile ft.	Using storage sq. mile ft.	Remarks
April	1,300	.....	800	.....	75	
May	4,400	2,300	.....	220	.....	
June	3,800	1,700	.....	158	.....	
July	2,600	500	.....	48	.....	
August	1,900	.....	200	.....	19	
September	1,500	.....	600	.....	55	
October	1,600	.....	500	.....	47	
November	1,400	.....	700	.....	65	
December	1,500	.....	600	.....	58	
January	1,600	.....	500	.....	48	
February	1,800	.....	3000	.....	26	
March	600	.....	1,500	.....	144	
				426	462	

MINIMUM REGULATED DISCHARGE TIMISKAMING IMMEDIATE WATERSHED, 5,700 c. f. s.

Month	Flow c. f. s.	Amount over 5,700 c. f. s.	Amount under 5,700 c. f. s.	Making storage sq. mile ft.	Using storage sq. mile ft.	Remarks
April	3,700	.....	2,000	.....	186	
May	13.000	7,300	.....	701	.....	
June	11,700	6,000	.....	556	.....	
July	6,000	300	.....	29	.....	
August	5,000	.....	700	.....	68	
September	3.900	.....	1,800	.....	167	
October	3,200	.....	2,500	.....	233	
November	3,800	.....	1,900	.....	176	
December	3,900	.....	1,800	.....	172	
January	4,200	.....	1,500	.....	144	
February	2,900	.....	2,800	.....	243	
March	4,700	.....	1,000	.....	97	
				1,286	1,300	

MINIMUM REGULATED DISCHARGE AT QUINZE, 10,200 c. f. s.

Month	Flow c. f. s.	Amount over 10,200 c. f. s.	Amount under 10,200 c. f. s.	Making storage sq. mile ft.	Using storage sq. mile ft.	Remarks
April	6,300	.....	3,900	.....	363	
May	21,800	11,600	.....	1,114		
June	19,000	8,800	.....	818	.....	
July	13,000	2,600	.....	249	.....	
August	9,500	.....	700	.....	69	
September	7,700	.....	2,500	.....	233	
October	6,800	.....	3,400	.....	317	
November	7,200	.....	3,000	.....	280	
December	7,600	.....	2,600	.....	251	
January	8,200	.....	2,000	.....	193	
February	8,800	.....	1,400	.....	124	
March	2,900	.....	7,300	.....	700	
				2,181	2,168	

MINIMUM YEAR.

Timiskaming—Kipawa—Quinze Reservoirs.

Minimum Discharge Conditions:—Kipawa 2100 c.f.s., Timiskaming Immediate Watershed 5700 c.f.s., Quinze 10200 c.f.s., Timiskaming Discharge 18,000 c.f.s.

Month	Reservoirs						End of Month			Remarks
	Kipawa		Timiskaming Immediate Watershed		Quinze					
	Making storage sq. ml. ft.	Using storage sq. ml. ft.	Making storage sq. ml. ft.	Using storage sq. ml. ft.	Making storage sq. ml. ft.	Using storage sq. ml. ft.	Storage in Kipawa sq. ml. ft.	Storage in Timisk. sq. ml. ft.	Storage in Quinze sq. ml. ft.	
April	.....	75	.....	186	.....	363	Empty	Empty	Empty	
May	220	.....	701	.....	1114	.....	220	701	1114	
June	158	.....	556	.....	818	.....	378	1257	1932	
July	48	.....	29	.....	249	.....	426	1467	2000	181 sq. mile ft. wasted to Timiskaming.
August	.....	19	.....	68	.....	69	407	1399	1931	
September	.....	55	.....	167	.....	233	352	1232	1698	
October	.....	47	.....	233	.....	317	305	999	1381	
November	.....	65	.....	176	.....	280	210	823	1101	
December	.....	58	.....	172	.....	251	182	651	850	
January	.....	48	.....	144	.....	193	134	507	657	
February	.....	26	.....	243	.....	124	108	264	533	
March	.....	144	.....	97	.....	700	Empty	167	167	167 sq. mile ft. will have to be drawn off Timiskaming to make up for Quinze leaving Timiskaming, Quinze and Kipawa empty.

As shown in the foregoing tables the storage dams under construction, or proposed, will increase considerably the low water flow of the Ottawa river, consequently raising the low water level of the river.

The following tables show the minimum regulated discharge and increase of low water level. as compared with the present minimum flow and low water level at four principal points:—Mattawa, Chaudiere Falls, above Ottawa city, below Ottawa city and at the head of Montreal Island.

MATTAWA.

Drainage Area—19,663 square miles.

Natural Conditions.

April to March

Years	Mean yearly flow c. f. s.	Maximum c. f. s.	Minimum c. f. s.	Minimum regulated c. f. s.	Increase of low water level—Klocks
1909	31,000	May 111 000	March 11,050	30,000	Elevation 481.8—5.8
1905	20,000	May 51,000	October 11,000	20,000	479.6—3.6
1877	17,000	May 35,000	September 8,000	17,000	478.7—2.7 L. W. 476.0

CHAUDIERE FALLS ABOVE OTTAWA.

Drainage Area—34,623 sq. miles.

April to March

Years	Mean yearly flow c. f. s.	Maximum c. f. s.	Minimum c. f. s.	Minimum Regulated c. f. s.	Increase of low water level Deschenes Lake
1909	55,000	May 145,800	October 25.000	35,000	191.7—2.5
1905	38,000	May 92,000	October 16,000	25,000	190.7—1.5
1877	33,000	May 62,000	October 10,000	25,000	190.7—1.5 L. W. 189.2

BELOW OTTAWA CITY, BESSERER'S GROVE.

Drainage Area—45,473 sq. miles.

Years	Mean yearly flow c. f. s.	Maximum c. f. s.	Minimum c. f. s.	Minimum Regulated c. f. s.	Increase of low water at Rideau Locks
1909	71,000	May 222,000	February, 1910 23,000	40,000	131.7—3.6
1905	51,000	May 128,000	October 24,000	30,000	130.3—2.2
1877	42,000	May 79,000	September 20,000	30,000	130.3—2.2 L. W. 128.13

HEAD OF MONTREAL ISLAND.

Drainage Area—55,693 sq. miles.

Years	Mean yearly flow c. f. s.	Maximum c. f. s.	Minimum c. f. s.	Minimum Regulated c. f. s.	Increase of low water level below Carillon
1909	96,000	May 300,000	February 30,000	45,000	71.25—1.7
1905	73,000	May 146,000	March 34,000	35,000	70.3—0.7
1877	47,000	May 100,000	September 12,700	35,000	70.45—0.9 L. W. 69.6

Physical Characteristics of the Ottawa.

EXTRACT FROM REPORT OF I. C. CLARKE, C.E., ON OTTAWA NAVIGATION, 1860.

Before taking up in detail the method of improvement proposed for the chain of waters, I shall sketch briefly the physical geography of the Ottawa valley, and some of its prominent geological features. Nor is this foreign to an Engineering report, for, in order to clearly understand the matter of the changes proposed, we must first get a correct idea of things as they are.

Rivers have been well defined as the channels by which the water, originally evaporated from the sea, and falling upon the land, is returned to sea again, and the volume of water discharged is the excess of precipitation over evaporation throughout the valley of any river, varying directly with the area of drainage, the rain-producing character of the atmosphere, and the nature of the soil.

Their position is determined by the laws of gravity, and they always follow, from the interior portions of continents to the sea, the line of quickest descent,—that is, the line of lowest level, whether resulting from upheaval, denudation, or the combined effects of both.

The characteristics of rivers are much modified by the nature of the geological formations through which they pass, and their different powers of resistance to the transporting and eroding effect of the waters.

In a country based upon sedimentary rocks, which are not hard enough to resist the force of the current, and generally do not appear above the surface at all, the formation of river channels is a process similar to that which we see when a shower falls upon a newly cultivated field. The water follows the line of quickest descent, but meeting materials of different degrees of hardness, it meanders about from right to left and assumes a sinuous course; its constant tendency being to elongate its channel and consequently diminish its slope. These windings are so great in some rivers as to double their length, as in the case of the Mississippi, between the Ohio and the Gulf of Mexico. When the length of the channel has been so much increased as to diminish the slope, and the consequent velocity of the current to such a rate that it will eat into the shores no longer, the regime is said to be established.

But in a formation composed of the harder crystalline rocks which obtrude themselves above the surface, the waters have not the same power to form for themselves channels; and the characteristics of the rivers of such a country are very different from those previously described.

The irregular depression and clefts in the surface become filled with water, and form lakes, whose overflow tumbles in cascades and rapids, over the rocky barriers

which it cannot destroy, until it finds its way into other lakes, lying at a lower level and from there to others, until at last it is received in some such arm of the sea as the Gulf of St. Lawrence, or Hudson's Bay.

A glance at the map of our continent will show at once the distinctive peculiarities of the two systems. North of the St. Lawrence, in the region of crystalline rocks, the country is dotted with lakes and the connecting rivers are generally short. In what may be termed the Mississippi system, there are but few lakes, and the rivers are long, and marked by a peculiar sinuosity of course.

Owing to the absence of the harder rocks, there are but few cascades and rapids. The currents are strong, but all the tributaries of the Mississippi have at some seasons of the year a natural navigation for boats of light draft of water.

On what we may call the northern river system, the navigation consists of stretches of deep and still water, interrupted by rapids and falls, around which the light canoes of the voyageurs are portaged by hand.

The obstacles to the improvement of these two river systems are of an entirely opposite nature. The problem in the one cause is to regulate the natural flow, so as to retain sufficient depth for navigation in summer, and to defend the surrounding country from the disastrous inundations caused in spring floods, which often rise to a height of fifty or sixty feet above the summer level, and would probably sweep away any artificial works intended for the improvement of navigation. As the country becomes more widely settled, and a larger area of timbered land is cleared away, the evil increases: for swamps diminish evaporation, and act as natural reservoirs to moderate the violence of torrents.

Our river system, fortunately for us, is furnished with a series of reservoirs, which cannot be destroyed, in the lakes themselves. These lakes receive the waters from the melting of the snows in the spring, and hold them stored up against the summer heats. Hence the beautiful uniformity of the flow of our rivers. The St. Lawrence, unless dammed by ice, seldom rises over four or five feet; and the average rise of the Ottawa, where free from obstructions, is about twelve. There are few more beautiful illustrations of that beneficent design, which adapts the physical structure of the earth to the wants of its inhabitants than this; for, from the unretentive nature of the soil, the rain would escape nearly as fast as it fell: and the northern rivers would be torrents at one time, and nearly dry for the rest of the year, were it not for these natural reservoirs in which the surplus waters have been stored up among the hills.

To improve the navigation of such a river system is a comparatively simple matter, for the greater part is already done to our hand, and we have only to devise some means of getting from one lake to another, and our task is accomplished.

This brief sketch of the more prominent peculiarities of the northern river system of this continent will enable us readily to comprehend the physical characteristics of the Ottawa, the largest of the tributaries of the St. Lawrence.

Its total length from its source, near the heads of the Saguenay and St. Maurice according to Sir William Logan, from whence it describes nearly the half of a circle in its course, until it falls into the St. Lawrence at the Island of Montreal, is over seven hundred miles; and it drains an area of 55,700 sq. miles.

From the Table of Rivers (See Appendix B) it will be seen that its size is about equal to that of the Rhine, and its great regularity of flow, particularly as compared with such rivers as the Ohio and Rhine, will be evident.

This is principally owing to its numerous lakes, as before mentioned; but in some degree to the fact, that, from the difference of latitude, the snow has melted and passed out of its Southern tributaries, before its "north water", as it is called, comes down.

The two great divisions of its rocks are Laurentian and Silurian. The Laurentian rocks are supposed by geologists to have been the surface of the then

existing continent, and the floor of the sea upon which the sedimentary Silurian rocks were deposited.

The outlines of the shores of this ancient continent followed the North bank of the St. Lawrence, and thence up the Ottawa, skirting its north shore at varying distances. The present Ottawa Valley, as far as Deep River, seems to have been a bay or inlet of the Silurian Sea; bounded on the north and west by the main continent, and on the south by a peninsula which runs into Northern New York, and forms that wild section of country of which the Adirondack Mountains are the eastern boundary. The river St. Lawrence has broken the isthmus which connected this peninsula with the main land, in a great number of channels, forming the celebrated group of the Thousand Islands.

The surface of this Laurentian formation is extremely rugged, and the rocks are contorted in a manner that shows the action of some extraordinary force. There is little level land, and the hollows between the rocky hills are innumerable lakes whose water is clear and deep. The whole region shows the wearing effect of water, and has evidently been much influenced by glacial action, as may be seen from the grooved appearance of the rocks and the hills, and the huge deposits of boulders that choke up portions of the river beds. The rocks consist chiefly of micaceous and hornblendic gneiss, mica slates, and veins of crystalline limestone.

The Silurian rocks, on the other hand, are sandstones and limestones; lying in regular strata, flat and undisturbed as when deposited on the floor of the ocean.

The truth of the observation of Hugh Miller that the physiognomy of the landscape depends upon its geology, is nowhere more evident than upon the Upper and Lower Ottawa.

From Montreal to Deep River the Ottawa runs in a Silurian valley; although at some points, as the "Rocher Fendu" and the "Chats", the crystalline rocks show themselves in the channel of the river. The general features of the landscape are those of a level country, like that of all limestone formations; rocky barriers have penned back the waters into long lakes, like the Deschenes and Chats, whose shores are low and flat, and generally cultivated to the water's edge with fertile farms. The timber is hardwood, principally beech, maple, ash and elm. The width of these sheets of water is from half a mile up to two miles. Along the northern shore at varying distances, runs the unbroken outline of the Laurentian hills; which, as has been stated, were probably once cliffs against which beat the waves of a Silurian sea.

Above Deep River the character of the landscape changes. We are now entering upon the oldest part of our continent, whose rugged masses and contorted outlines speak of the convulsions of former ages. The hills that had admitted a strip of level country between their bases and the river now crowd close upon its edge, and rise precipitous in some places to the height of seven or eight hundred feet. The groves of hardwood give place to those vast forests of pine of which the wealth of the Ottawa chiefly consists, and the clearings are few and unimportant.

Hydrological Characteristics of Ottawa River.

The flow through the river is a minimum in April each year and begins to increase as the melting snows fill the tributaries. The snow over large areas melts rapidly on bright warm spring days and concentrates in pools which about 4 p.m. empty together into the creeks. During night time, the supply decreases till 9 a.m., when another contribution begins to surfeit the small streams. The Rocky Mountains illustrate the power of bright sunshine in melting the glaciers which swell the creeks during the afternoon. With sunset, however, the flow diminishes and at sunrise all the water courses are normal again, and if the succeeding day be cloudy with rain, there is no such flooding.

The various creeks and streams pass the water to lakes, which gradually rise, or to swamps which eventually fill to saturation, becoming in fact shallow lakes. Square mile after square mile of snow beneath the sun's rays is furnishing water to small lakes, each of which must rise for a few days to gain a rate of discharge co-measurate with the income of melting snow. This causes delay and meanwhile the sun becomes more powerful, so the remote and colder localities catch up with their quota. If there were no large lake areas along the Ottawa, heavy concentrated floods would be the result, but the following list shows there are many lakes:—

Average fluctuation feet	Lakes	sq. miles	Tributary basin sq. miles
16	Grand Lake Victoria	40	5,000
6	Expanse and Quinze Lakes	100	10,000
12	Timiskaming Lake	100	19,000
5	Deep River (Pembroke Lake)	75	22,000
9	Coulonge Lake	25	28,000
5	Chats Lake (Arnprior)	30	34,000
5	Deschenes Lake (Aylmer)	45	35,000
10	Ottawa to Grenville	65	54,000
6	Lake of Two Mountains (Oka)	65	55,700
		560	

These give 560 sq. miles of rest area tending to equalize the flow. The statement of the late T. C. Clarke regarding the uniformity of flow in the Ottawa compared with the flushiness of southern rivers that rise 50 feet commands careful consideration. It is this very steadiness of flow that makes it possible to regulate that flow economically for navigation and power.

After June, the snow water has flowed away and soon the river begins a steady fall of surface, which the summer rains can only check slightly. September, therefore, generally witnesses a low stage, but usually there are autumn rains that fill the subsoil of the basin and sometimes cause a rise of consequence. The ground water, coming out all winter from swamps, serves to maintain a flow during January, February and March, when the frost covering prevents all surface supply.

Rainfall over the Ottawa in summer is even and there are no steep hills to rapidly shed their load of water upon alluvial plains which have not sufficient slope to carry it away. Except then for the concentrated run off in May and June, due to the accumulation of snow, there is no great flood although autumn rains create local rises.

The similarity of the whole watershed and the precipitation upon it renders it possible to estimate the flow at so much per square mile, and the following table shows the results:—(See diagrams of daily discharge.)

AVERAGE FLOW IN CUBIC FEET PER SECOND PER SQUARE MILE.—1910.

Ottawa River	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Quinze	0.834	0.598	0.481	1.864	2.629	1.962	1.128	0.863	1.020	1.736	1.614	1.089
Timiskaming	0.773	0.602	0.497	1.652	2.564	2.077	1.154	0.865	0.785	1.113	1.878	1.236
Klock Station	0.864	0.695	0.646	1.292	2.609	2.186	1.242	0.944	0.844	1.167	1.590	1.143
Britannia	0.664	0.548	0.779	1.904	1.964	1.733	0.951	0.722	0.722	0.808	0.924	0.866
Besserers	0.749	0.638	1.025	2.230	2.123	1.752	0.920	0.656	0.648	0.775	0.895	0.837
Montreal	0.607	0.521	0.803	2.964	2.214	1.464	0.580	0.580	0.509	0.768	1.411	0.607
TRIBUTARIES.												
Montreal	0.397	0.397	0.401	0.417	0.414	0.409	0.397	0.393	0.392	0.393	0.395	0.393
Petawawa	0.580	0.674	0.914	2.490	2.301	2.566	1.293	0.756	0.391	0.315	0.346	0.346
Black	1.321	1.014	3.095	5.701	2.447	3.780	0.836	0.534	1.052	1.241	0.660	0.969
Coulonge	0.794	0.613	2.179	8.294	5.643	4.892	1.918	0.916	1.015	2.251	2.235	1.824
Bonnechere	0.417	0.472	1.011	1.648	0.967	0.879	0.505	0.186	0.132	0.066	0.186	0.181
Madawaska	0.458	0.436	0.831	3.455	1.994	0.710	0.592	0.249	0.224	0.230	0.233	0.233
Gatineau	0.821	0.493	0.876	3.669	2.793	2.552	1.314	0.876	1.369	1.752	1.041	0.668
Du Lievre	0.554	0.618	0.660	3.586	5.317	1.360	0.618	0.643	0.667	0.964	0.648	0.618
South Nation	.....	.....	3.481	1.218	0.766	0.383	0.087	0.195	0.087	0.226	0.139	0.069
Rouge	0.962	0.578	1.189	6.659	2.486	2.054	0.702	0.741	1.162	1.162	0.783	0.567

The Ottawa watershed is largely a granite plateau, cleft and recleft in its geological adjustment, and ground and reground by glaciers. The clefts are filled with water forming lakes, or with sand and vegetation and water as making extensive swamps. The plateau is flat but the cleavages make it very rough, and the forest renders it difficult of access. Generally the area from Ottawa city north to Grand Lake is only 1,000 feet above sea, so the watershed slopes are not steep and quick sliding. The plateau continues flat to the very edge of Timiskaming, where a fall of 300 feet from Quinze and Expanse, from Kipawa and from Temagami, via Montreal river, takes place quickly over its edge. From Timiskaming, the main river falls about 550 feet to Montreal, a distance of 350 miles, or say, 1½ feet per mile, all of which is made principally in eight series of falls generalized as follows:—

Locality	Length miles	Fall feet
Back River	15	60
Carillon to Hawkesbury	11	65
Ottawa to Deschenes	6	55
Chats Falls	3	50
Rocher Fendu	15	125
Joachims Falls	2	40
Rocher Capitaine to Deux Rivieres	12	90
Mattawa to Timiskaming	35	80

This style of river—falls and pools—creates a series of long settling basins and the water should be very clear. The country rock, however, being granite, the lime is wanting to precipitate the vegetable carbons, derived from the extensive northern

swamps. The color of the Ottawa water is consequently a dark brown, but there is very little suspended sediment in comparison with alluvial rivers that form sand bars with every flood.

Parts of the river and some tributaries, however, convey silt locally, as for instance, the main river at its entry to Expanse lake and the White river at the north end of Lake Timiskaming.

After meandering through the swamps and clay belt of the northern plateau and falling over its brink into Timiskaming lake, the main river follows a crevice through the granite to Arnprior. Above Mattawa and below through the Deep River to Pembroke, the river is really a small canyon with sides one to five hundred feet in height. It is interesting to note in this regard that the diminutive of the Spanish word "canon" is "Canada," and from Mattawa to the Gulf of St. Lawrence the north shore suggests the Spanish diminutive.

With clay banks, the river would erode an even cross section, but the granite refuses to wear, and after centuries there are still restricted or choked sections. The disproportion between the size of river and the flow tends to pen up the stream and give rise to the statement that "much less water passes at Ottawa than at some point above".

Locality	Choke Area.
Outlet of Quinze	
" of Timiskaming	7,500 sq. ft.
Head D. River Rapid	1,600 "
" Chats Rapid	29,000 "
" Deschenes	21,000 "
" Grenville	
Chute-a-Blondin	

The alluvial portion of the watershed begins about Arnprior, and the fertile farm lands of the counties of Carleton, Russell, Prescott and Vaudreuil apprise the eye of a geological change. The character of the tributaries, Mississippi, Carpe, Rideau, South Nation and Rigaud and lower part of North river in Argenteuil County, varies vastly from the blue hills, sand and rocks of the Gatineau and the Rouge.

Instead of the jagged rock shoals formed by the fractured granite, there are sand bars or mud bars swept along by the rising river, but deposited by the slackening current. Soft bottomed rivers invariably adjust themselves to a series of deep submerged pools, elongated in the direction of the current, and overlapping each other. Between, is a bar over which the current sets diagonally.

Review of the Square Timber Trade.

E. T. SMITH, COLLECTOR OF PUBLIC WORKS REVENUE.

As it has been freely stated that no more square timber will come over the Ottawa slides, it may not be out of place to glance back to the earliest record we have of what was once regarded as the most important branch of the commerce of this country, namely the timber trade.

UNDER FRENCH RULE.

During the French regime, the timber resources of Canada were regarded as of comparatively such little importance that they were treated as merely incidental to the general land policy of the government and the relation between the Crown, the seigneurs and the habitant or tenant, hence while the seigneur and his tenants;

as required by the Seigniorial Grant, as far back as 1683, were obliged to clear and inhabit the land within a specified time, the seigneur was bound to "preserve and cause to be preserved by his tenants within the limits of the grant, the oak timber fit for the building of vessels". This condition was general if not universal, in all the grants made under the French Crown. Thus the only question which then seemed to concern the government was the maintenance of an ample supply of timber for the Royal Navy. The pine and other woods of the forests, which now form so important a feature of natural wealth, seem to have been looked upon with indifference by the seigneur and the habitant.

In 1731, a permit to cut 2,000 cubic feet of oak in the seigneury of Dautray and Berthier, for the construction of war vessels of 500 tons, and another to cut a similar quantity in the seigneury of Chambly and along the River Sorel, were granted.

In 1740, the Governor issued an ordinance forbidding people of all conditions cutting any oak in the Ile Jesus, in the seigneury of the Lake of Two Mountains and in the Ile Bizard until it was inspected, and such trees as were found adapted to naval construction marked and retained.

In 1722, the Governor decided that though in the grants the oak was reserved, yet as the land could not be improved without cutting down the trees, it was in the public interest that valuable timber so cut down should be made into boards or cordwood rather than burned on the spot, as the money so realized would help the inhabitants to establish themselves, but where the inhabitant cut the timber solely to sell it, without afterwards clearing the land, the seignior had the right to seize the timber and bring the case before the Governor.

In 1713, an ordinance was issued forbidding the cutting of timber at Cote St. Jean by any not proprietors of the land, under a penalty of 50 livres and confiscation of the trucks and horses serving to transport the said wood. A similar prohibition was issued in 1747, applying to the seigneury of St. Croix.

In the same year, permission was granted to take from adjoining lands timber necessary for the construction of bridges. In a word, up to the close of French rule in Canada, the only reservations by the government were of timber suitable for naval and military purposes, and the customary reservations by the seigniors of timber for various purposes out of the forest products of the holdings leased to the tenants.

UNDER BRITISH RULE.

On December 7th, 1763, after the British took possession of the colony, the first Governor, James Murray, was instructed to reserve in each township surveyed "proper quantities of land for erecting fortifications and barracks where necessary, or other military or naval services, and more particularly for the growth and protection of naval timber, if there are any woodland fit for that purpose, and reserving all of the country in the neighbourhood of Lake Champlain and between the lake and the River St. Lawrence or any other within your government as shall appear on survey to abound in trees fit for masting for our Royal navy and other useful and necessary timber for our navy constructions, when such trees are convenient for water carriage, and consider the advisability of some regulations to prevent the erection of saw mills without a license from the Governor or Commander in Chief and so prevent waste and destruction in such lands as were reserved."

In 1775, Guy Carleton, 'Captain General and Governor in Chief of the province of Quebec', was instructed as follows:—

"That no grant be made of any lands on which there is any considerable growth of White Pines fit for masting for our Royal navy and which lie convenient for water carriage."

I might mention that regulations of 17th February, 1789, also reserved water powers.

In 1807, licenses to cut timber in Canada were granted by the Home Government to the contractors for the Royal dock yards, who besides filling their contracts, took advantage of the privileges so conferred on them to do a general business in supplying the British markets. This was accomplished by the contractors issuing licenses to merchants and lumbermen in Canada who operated as their agents.

The first Canadian timber laws were adopted in Lower Canada in 1805, 25th March:—"An Act for the appointment of an inspector and measurer of scows and rafts and for regulating the pilots and conduction thereof between Chateauguay and the City of Montreal." The measurement simply had to do with the draughts of water required by rafts and scows to pass them safely through the rapids. In 1808, was adopted the "Act for the better regulation of the lumber trade"; it begins thus:—"Whereas lumber is become an article of importance in the export trade of this province and it would tend to increase its growing reputation to the great advantage of trade if the quality and measurement thereof were properly ascertained."

It provided that no lumber of the description specified in the Act should be exported until it had been culled, measured and certified as to quality; this Act was in force only two years.

In 1811, it was re-enacted with some changes, and legislation was enacted from time to time until 1819, when they were all repealed and a new Act adopted. This latter, with amendments made in 1823 and 1825, was in force till 1827: after being renewed in 1832, it was allowed to expire, by lapse of the term for which it was revived, in 1834.

After the union of the provinces in 1840, a measure was passed by parliament whereby the appointment of a supervisor of cullers and board of examiners of cullers was authorized. It was repealed and a more stringent measure passed in 1843.

It was not till 1826 that the monopoly held by the navy contractors was abolished and the public allowed to cut timber on the ungranted lands of the Ottawa lumber region in payment of a fixed scale of rates to the Crown.

Philemon Wright, who with his little band of hardy pioneers had penetrated the forest to the present site of the city of Hull, P.Q., arriving there on the 7th March, 1800, was the father of the lumber trade of the Ottawa: he also built the first saw mill in the Ottawa country, it being finished in the autumn of 1800.

The events of the war of the French revolution had thoroughly disorganized commerce, in consequence, the Baltic, from whence England had drawn most of her timber supplies, and the countries bordering thereon, were closed to English merchandise. England began to feel the want of timber and hemp, and Canada, the colony so despised by British politicians of the day, came to the front with considerable supplies of both.

Mr. Wright set diligently to work to produce timber and hemp, but abandoned the growing of the latter after the peace of 1815.

The first raft of square timber floated down the Ottawa river left the mouth of the Gatineau river on the 11th June, 1806, and reached Montreal in 28 days, having run the Long Sault and Carillon rapids in safety, passed Montreal by the Back river and down the St. Lawrence to Quebec, and before 9 years the timber trade of the Ottawa was firmly established.

From 1806 till the imposition of a timber duty on exportation, in 1823, there are no authentic records available.

In the early days of the trade, the mode of constructing a raft was so crude and the apparatus so primitive, though displaying great ingenuity, that, to the navigator of late years, it seems almost incredible that with such appliances the timber was successfully taken through the rapids named on the Ottawa river and weathered the frequent rough seas on Lake St. Peter. The mooring apparatus consisted of wooden anchors and cables made of withes (twisted birch saplings), the only propelling powers being the winds, the currents and the oars of the raft's crew,

which oars were about 24 feet long hewed out of small trees, hence two seasons were often consumed in getting a raft to Quebec, while the same trip could now be made in four weeks or a little less, for rafts have been delivered in Quebec early in July, having traversed the 600 miles from Lake Timiskaming since the last days of April.

In the early days, as in late years, a raft was composed of a number of cribs, which were built up thus: A frame of the desired dimensions was made of small flatted timber, bound together at the corners by wooden pegs and often further secured by withes, then the longest and straightest timber was selected for the bottom of the crib, stability was then secured by placing on the top of several pieces of traverses, being small flat timber placed across the timber, which latter were known as loading sticks; by the weight of these the timber in the bottom of the crib were kept almost solid in place, nevertheless it was not unusual when running a rapid, that striking sunken rocks, the bottom sticks would slip and the crib be wrecked; as the cribs were completed they were secured together, by withe ropes, in oblong form, and were then termed a raft.

The wooden anchors were made of oak, shaped somewhat like a grappling iron, with large chain withes passed through the different forks, encircling a stone of such dimensions as was deemed sufficient to answer the purpose and could be handled. This stone was secured within by interweaving other smaller withes about it, and continuing them until they connected with the main cable, also constructed of withes, and it is a matter of history that these primitive anchors answered every purpose to the rafts of those early times, that their more durable and powerful successors subsequently served, in later years.

TIMBER SLIDES.

As the timber became scarce in the region where the trade originated, operators had to resort to the country above the Chaudiere Falls, hence the necessity arose of providing some means of getting the timber safely past this and other similar places on the Ottawa river.

Up to the year 1829, when the first slide was constructed by a son of Philemon Wright, at Hull, the passing of timber over the Chaudiere Falls was attended with considerable labour and occasional loss of life.

At high water the timber was floated down through the Little Chaudiere, on the south side of the Ottawa, to the large bay, known as Nepean Bay, at Le Breton's Flat, above the Falls, thence a crib was towed by men with ropes and snubbed around a small eddy, until thrown into the current of water leading to the southern edge of Chaudiere Falls; without this precaution, two-thirds of the timber would have taken the direction of the lost channel passing over the falls into the great cavern, near what is now the location of the Ottawa Electric Power House, from whence it could not be removed until low water, and then only at great extra expense.

Pine cribs passing the falls as above described, were broken up, the detached pieces were caught by a boom extended from the lower end of Victoria island to the main shore on the Quebec side of the river, and the timber rerafted for the Quebec market; cribs of heavy floating timber and staves that could not be secured by the boom, were broken up in the bay above the falls and drawn overland to below the falls to be there rerafted.

When, in low water, this channel was impassable, the cribs were run over the Little Chaudiere, through the Mast channel, falling down with the current, until passing the reef extending from the island (long since removed) above the Kettle, thence, rounding the reef, were made fast to the island, where two men in a birch canoe could place the crib in the best position to pass through the Big Kettle, the men returning with the canoe for another crib and so on, until the whole raft was

passed. At this pitch of water, it was necessary to boom the Ottawa river from the point at the Hull landing (near the Eddy Company's sulphite mill) to what is now known as Nepean Point, where the timber was rerafted.

In Switzerland and Sweden single stick slides had existed for years, but the construction of a slide of sufficient capacity to carry through a crib of timber was reserved for the development of a trade of corresponding magnitude.

The first of those slides was constructed by Ruggles Wright, son of the founder of the trade, in the year 1829, and George Buchanan built another on the south side of the Ottawa, where the government slides now stand, in the year 1832; they were both adapted to pass cribs of 24 feet in width and 40 feet and upwards in length.

At the Chats, Mr. Buchanan built the first slide in 1835.

In 1838-9, a slide was built at Portage du Fort, but was destroyed by a freshet and rebuilt in 1841 by Mr. J. Poupore, sr.

Those at Calumet Island were built by David Moore, sr., and that at Des Joachims in the same year, 1843.

On the tributaries, the slides were constructed as follows:—

Gatineau boom, by the government, in 1848.

Madawaska, commenced by the lumbermen prior to the Union, and continued by the Madawaska Improvement Company; the slide was rebuilt by the government in 1846-7, at the High Falls.

Coulonge slide, built by the government in 1865.

Black river, by J. Poupore, sr., in 1867.

Petawawa, government in the years 1857-8.

River Dumoine, by the River Dumoine Boom and Slide Company, in 1851.

The above relates only to the construction of the first works of the kind constructed on these rivers.

Until the year 1841, notwithstanding that steamers had, for many years previously, been plying on the Ottawa, the only means of propulsion used by the lumbermen in getting the timber to market were the currents, the wind and oars, but in 1841, for the first time, a steamer towed rafts from Ottawa to Grenville.

In 1819, the first steamboat was placed on the stretch from Hull to Grenville, by Philemon Wright, but until 1825, there was no steam communication between Grenville and Point Fortune

In 1833, the first steamer, the Lady Colborne, was placed on the route from Aylmer to the Chats; in 1846 came the Oregon, plying between the head of the Chats and Portage du Fort, and in 1854 the Pontiac, which ran from Pembroke to Des Joachims.

To return to the timber, from Bout de l'Isle, the rafts were towed by tugs, and considerable loss was incurred by the rafts being broken up by storms in Lake St. Peter.

The timber began to reach Ottawa generally in the middle of the month of May and in the '60's the last was not usually down till the middle of September.

In 1883, came another change in the mode of conveying the timber to market, for in this year a raft of timber was shipped by rail from Mackey's station on the Canadian Pacific Railway and another lot from North Bay on the same line; this timber was thus conveyed to Papineauville, 40 miles below Ottawa, and there rafted and taken to Quebec by the old methods.

Nowadays, most of the timber is carried by rail right through to Quebec, no doubt, mainly because the prices (of which more later on) enable the producer to pay the greater cost of this manner of conveyance, and it also results in a great saving of time.

Arrived at Quebec, the timber was put into booms at various points, known as coves, where it was measured, culled and put into shipping order, then shipped

and stowed by stevedores, who made a profession of this business. From these and the men employed by them sprang the ship-labourers' union, which has not proved an unmixed blessing for the city of Quebec.

The vessels employed in carrying timber to the old country were barques of six to seven hundred tons register and would usually stow 750 to 960 tons of timber.

The average voyage out and in occupied from eight to twelve weeks.

There are many yet living who can recall how welcome was the news 'the spring fleet' or 'the fall fleet' had arrived, as the case might be, for these vessels usually made two round trips in the season.

In this connection I may be permitted to call attention to the following facts:—

In 1805, the number of vessels entering the port of Quebec was 146, having a freight capacity of 26,136 tons.

In 1859, there arrived at the port, 970 vessels whose freight capacity was 510,814 tons, manned by 17,046 men, while those cleared from the same port numbered 1,051 vessels of a carrying capacity of 559,135 tons, and manned by 17,834 men. The gross total to all ports of the province, inland and sea ports, was 17,417 vessels inward and 16,499 outward bound, of a grand total of 8,313,563 tons.

But the ordinary ship was not the only means adopted of transporting the product of our forests to the old country.

In 1824, there was built, in Quebec, a large ship or raft called the Columbus, and in 1825, a Mr. Charles Wood constructed another; both were presumably built at the Island of Orleans. Of the first, no particulars are at hand, but the second, called the Baron Renfrew, was a ship built up of solid timber, etc., as follows:—

Her dimensions were 304 x 61 x 34 feet, and registered 5,294 tons; main mast 104 feet; topmast 40 feet; top gallant mast 30 feet; rudder post 50 feet x 26 inches; her tiller was a log of oak 32 feet x 16 inches, steered by three wheels with two men to each wheel, she had a crew of 93 men.

Her cargo, or more properly speaking, she was built of 84 masts and bowsprits, 3,207 logs of pine, 423 of oak, 15 of elm, 23 of hickory, 4 of basswood, 3 of butternut, one of birch, 15 of maple, 11 knees, 13,398 deals and planks, 4,502 deal ends, 23,089 pieces of lathwood, 4,788 ash oars, 5,148 pipe staves, 75,765 W. I. staves, 19,511 staves and heading, and 34,582 treenails; total, 9,500 tons.

She sailed from Quebec on the 16th August, 1825, arrived in the Downs 16th October following; was taken in tow by two steamers, but grounded on the Longsands off Margate; two days later she floated and was brought to anchor. I might mention here that her best bower anchor weighed 90 cwt., and her second best bower anchor was 77 cwt., she had one cable 26 inches in circumference and steam cable of 13 inches; but a storm arose which caused her to drag her anchors seaward and ultimately she went ashore between Gravelines and Calais, and became a total wreck.

In 1859, the value of timber exported was $12,572,759, including costs of all kinds, labour, freight, etc., which was more than half of the whole trade of the province for the year. How inconsiderable was the whole trade of the year 1805, being only $260,000.

It is worthy of mention here that the measure which gave to the lumber trade such legal protection as would enable those engaged in it to invest their means with at least a semblance of government countenance and protection, namely, when in 1823 the first duty on timber was levied in Canada during the administration of Earl Dalhousie: it was at the suggestion of Alexander McDonell of Sand Point, Ont., who was connected with the trade from the year 1817.

The largest quantity available at Quebec in any one year was in 1851, and it is recalled by an old resident of Ottawa that in this year the late Hon. John Egan

had 31 rafts, which, as each raft represented from 75,000 to 100,000 cubic feet, would make his production of that year about 3,000,000 cubic feet, a quantity which seems beyond belief.

In this connection, I am reminded of an anecdote which was current many years ago. Owing to overproduction, times were frequently very bad with the lumbermen; following one of these seasons of depression, two of the more prominent square timber men met and entered into a written compact to take out but a certain limited quantity during the following season. The next morning, each of them began preparations to double their previously intended output. Needless to say that the penalty provided in the agreement was never demanded by either of the parties thereto.

THE DECLINE OF THE TIMBER TRADE.

The comparison of exports, commencing with the year 1850 up to 1909, illustrates the changed conditions under which the forest supplies are sent to the European markets.

In the earlier part of the last century, the entire export of Quebec pine was in the form of timber in the squared log, hewn with the axe, and floated down to Quebec merchants, who put the timber in shipping order by butting and dressing same at the Quebec shipping coves, disposing of the culls locally for wharf building and other similar purposes. The greater part of the timber so received and shipped was white pine, squared to a sharp edge on the four corners; deals were made for export to other countries, and only reached the English market in the character of stowage deals. The square logs (and later on, waney) were converted into planks and boards at the various saw-mills in the great towns in England, and in county yards, pitsawing was largely in vogue for log conversion. In 1861, waney pine was made for the first time, this wood being left with a wane of from three to six inches on the corners, so avoiding the excessive waste of wood resulting from hewing the timber exactly square. Previous to this, the timber was square and of large average, beautifully hewn by the lumbermen in the woods; but board (waney) pine, that is, short logs of large girth, were sent down the drives with the other timber, and soon found their way into the market. Being cut from the lower part of the tree accounted for the waney character of the logs, but the quality of the timber was excellent. It gradually almost altogether supplanted square pine. To illustrate this point, I beg to submit the following comparison taken from the table herewith:—

Year	Square pine.	Waney pine.	Total
1861	15,731,000 c. ft.	6,735,000 c. ft.	22,466,000
1909	66,200 c. ft.	699,360 c. ft.	765,560

While the decline in the quantity of square and waney pine made for the Quebec market, to some extent due to the scarcity of suitable trees to manufacture into timber, it is in a far greater degree attributable to the increase in the deal and board trade. Gradually the produce of the saw mill took the place, for export, of timber in the hewn log. Before leaving this point, I would observe that in the Ottawa region a large proportion of the trees are suitable to make deal logs, but would not be large enough to be made into waney board pine. This is exemplified by the smallness of the square pine that was latterly taken down from Ottawa. In former days square pine was made 70, 80 and even 100 feet cube average; lately, it was with difficulty that 40 feet average cube was procurable in square pine, and the waney board pine is decreasing in girth annually. Formerly,

20 inches and over, average cube, was easily had, as late as 1904. 17 inch average was as large as most manufacturers would undertake to supply, and they frequently fell below this average on delivery at Quebec.

Reverting to the main cause of the decline in the timber trade, large saw mills were operated for many years at Montmorency, the water-power of the falls running the mills. There were also several other saw mills operated by steam and water power adjacent to Quebec or within a short distance of that city. For many of these mills, rafts of round pine logs were brought from the Gatineau and other limits. At Hawkesbury, the Hamilton mills (now owned by the Hawkesbury Lumber Company) and the Gilmour & Co.'s mills at Chelsea, produced large quantities of deals for export, which were rafted down to Quebec, and shipped either wet as "floated deals" or after being landed and piled as "dry floated deals".

Present conditions are entirely different; the trade in hewn timber has gradually diminished and seems to have almost come to an end, so far as the Ottawa country is concerned. The Montmorency mills have been dismantled long ago, like most of the other mills in the vicinity of Quebec, and the Gilmour mills at Chelsea have been demolished and the practice of floating deals to Quebec has disappeared.

The Hawkesbury mills still exist, but cut principally white pine lumber, that is, boards two inches and under, in thickness, for the United States market: the limited quantity of deals now cut at these mills goes to Montreal by rail or barge for shipment by ocean steamers loading at that port. I should mention that quite a large quantity of deals is manufactured by the larger mills in the Ottawa district, such as those of J. R. Booth, McLachlin Bros., W. C. Edwards & Co., Gilmour & Hughson, The Shepard & Morse Lumber Company, and others.

As deals took the place of timber, so lumber is gradually supplanting deals for export.

The sawn white pine exported is manufactured by Ottawa valley and western mills, and shipped from Montreal as being nearer the point of production.

This change from the manufacture of timber hewed square in the woods to the bringing of it to the mills in the form of round logs, has effected a very important saving of the very best material, formerly left in woods in the form of chips cut in the process of squaring the trees, which were useless for any purpose except that of spreading the vast forest fires that have destroyed many times more timber than ever was cut by the axe.

The change from sailing vessels to steamer for ocean carriage has necessarily affected Quebec as a shipping port for wood goods, as steamers charge no more on freight from Montreal than from Quebec, and as a matter of fact prefer the first named port as being under more favourable condition. Montreal also has the advantage of being nearer most of the mills that now produce pine lumber and deals, as they are generally west of it, and the freight by barge or rail is much less than to Quebec.

Thus the export business in wood has changed from hewn timber made with the axe and floated down to Quebec in rafts, with a limited proportion of deals sawn at Quebec mills or floated to Quebec from Hawkesbury or Chelsea on the Gatineau, to a small export of timber from Quebec, where hewn timber can best be handled on account of the facilities given by the tides and an export of sawn lumber including some deals from Montreal. A considerable proportion of the reduced quantity of timber now shipped comes from the United States, which is the source of all the oak exported, and most of the elm. The supply of oak suitable for export is exhausted in Canada, and the supply of elm is rapidly tending in that direction. Another change is that of shipping by steamer instead of by sailing ship. These two factors account for the loss of the squared timber trade by Quebec and Levis, which was inevitable, but some authorities say it was accelerated by the restrictions imposed and the wages exacted by the Quebec ship labourers.

Before leaving this subject, it may be interesting to say a few words about the price the lumberman received at Quebec for his timber. I have no record at hand earlier than of the year 1841. I was once shown by an old lumber merchant the settlement of account between a Quebec merchant and himself, in which he was credited with a raft of square pine, 70 cubic feet average, at 3d. (5c.) per foot.

Mentioning this to another old lumberman, he said it was perfectly correct, for he recalled that he had told the lady, whom he afterwards married, that he could not afford to marry till timber was worth 4½d. (8c.) a foot. He was married in 1846. In recent years, waney timber 18-inch average has brought as much as 80 cents per cubic foot and square pine 30 to 40 feet average, 40 to 50 cents per foot, a vast advance from the 5c. of 1841 or the 4½d. of 1846.

Doubtless the great prices paid for timber limits, higher timber duties levied by the provincial governments and the growing scarcity of large timber, all account for much of the increase in value to the producer, which is practically six times as much as it was in 1862, in which year it is of record that square timber could not be produced and delivered at Quebec under 7½d. or 12½ cents per foot.

In concluding this imperfect and crude sketch, I wish to acknowledge my indebtedness for most of the facts to papers furnished by Mr. E. H. Wade of Quebec, and Mr. Jas. Harney, acting supervisor of cullers at the same place; also to the very complete history of the timber license system compiled with the aid of Mr. Aubrey White, Assistant Commissioner of Crown Lands, Ontario, to a pamphlet published by the late G. H. Perry, formerly city engineer, Ottawa, and last but not least, to Mr. Coutlee's history of the development of the Ottawa country, to be found in the Georgian Bay Canal Report of 1908.

Development of Steam Navigation below Ottawa.

C. R. COUTLEE.

The Ottawa not only had the first steamboat west of Montreal, but maintained a steam navigation equal to the St. Lawrence till the 40's.

The Ottawa valley was opened to settlement about 1800. In 15 years a wooden lock was built at Vaudreuil, and Durham boats began ascending from Lachine to Point Fortune and St. Andrews. All goods, till 1825, were carted from Montreal to Lachine, because there being a good road, and there the Durham boats were loaded for both the Ottawa and St. Lawrence routes. Up the St. Lawrence, later, the boats proceeded, by the help of several small canals, to Kingston, but, by the Ottawa, their usefulness ended at Point Fortune or St. Andrews. Horse haulage was resorted to for 12 miles to the head of the rapids at Grenville, and then carriage by bark canoes to Hull, till Mr. Wright's steamboat the *Union,* in 1819, revolutionized the navigation of that stretch of river.

Mr. Wright's steamer the *Union* was built at Grenville in 1819. The motive power consisted of two heavy marine side lever engines, made by Messrs. Boulton & Watt at the Soho Works, Birmingham, and imported by Mr. John Molson of Montreal.

The timber commerce so increased the trade that the Durham boats were insufficient for the lower stretch; and, in 1826, the first steamboat line was operated between Lachine and Carillon. Captain Johnson had the honor of inaugurating with the *William King,* and the following year Captain Lighthall brought out the *St. Andrew.* He had been in charge of Judge McDonell's Durham boats, that up to this time had done all the business, freight and passage, between Montreal, Point Fortune and St. Andrews.

In 1828, McPherson, Crane & Co. put the steamer *Shannon,* Captain Grant, on this route. Meanwhile a great improvement was pending. The American war (1812-14) had emphasized the need of an interior route to Kingston, and, in 1827, the Imperial Government began the construction of the Carillon and the Grenville canals, and also the Rideau canal, Ottawa to Kingston. These were finished in 1833, and immediately we find the Ottawa and Rideau Forwarding Company established, with John Molson as director. He built the steamer Ottawa, Captain Lyman, the Shannon, and other boats for the Montreal-Kingston trade. The journey was stage to Lachine and boat to Carillon 2 days; stage again to Grenville and boat to Bytown and Kingston 3 days, freight being towed in barges.

The next year saw an experiment launched at Ottawa, the Nonsuch, a stern wheel boat, in which the old Boulton & Watt engine of the Union was placed. She ran for three seasons, but proved a failure.

In 1841, Captain Shepherd, the esteemed veteran boatman, accomplished several feats of river navigation. In July, he took the steamer St. David from Brockville through all the Cornwall and Coteau rapids to Lachine in one day, demonstrating the possibility of the now world renowned tourist route. Next day he went to St. Anne and made the first trip of a steamer with passengers on board up the Grenville canal. The same year he initiated the towing of rafts with steamboats, by taking one down Oka lake to the Lallemand rapid for Messrs. Hamilton & Low.

In September 1841, the Ottawa was so low that boats were unable to run the St. Anne rapid, and the first lock there was only being constructed. There was a lock at Vaudreuil, which, however, was owned by a private company that taxed all

traffic except their own very heavily. At the request of other shippers, Captain Shepherd examined the rapids and found a channel outside the lock, through which he successfully piloted their barges. This broke the monopoly of the St. Andrews Trading Company at Vaudreuil, which they had enjoyed since 1816.

The completion of the St. Anne lock, autumn 1842, opened the first daily passenger route, without barges in tow, between Montreal and Ottawa. The steamer Oldfield was operated on the lower part, Montreal to Carillon, and the Albion on the upper portion, Grenville to Ottawa, with a stage line between Carillon and Grenville. The owners were Sir George Simpson, Governor of the Hudson's Bay Company, and Messrs. Momarquette, Gibb & Shepherd.

The route, however, faded into only local importance with the opening of the St. Lawrence canal system, 1846, and the old proprietors sold out to engage in the larger field of enterprise.

The existing railway was built in 1857 by Sykes and De Berg, and bought by the present navigation company in 1864.

The towing business on the Ottawa received a great impetus about the fifties when the Chaudiere water powers began to be developed and sawn lumber was shipped to Montreal and, via Whitehall, to New York.

Some of the best known steamers were the Pioneer, 1848, Britannia, 1852, Queen Victoria, 1865, burnt at Carillon, 1879, and the Peerless. Propellers began to be used after 1840.

The Montreal and Ottawa Forwarding Company was dissolved in 1884, and succeeded by two freight lines, the Ottawa Forwarding Company and one organized by Captain Hall, of L'Orignal. These amalgamated in 1890, and have now several staunch propellers carrying local freight, salt, hay and farm products to and from the fifteen or twenty wharves between Ottawa and Montreal.

The lumber transport is done by powerful tug boats, towing four to six barges each, carrying from a quarter to a third of a million feet. The fleet of six tugs and eighty barges is owned and operated by Captain Denis Murphy, of Ottawa, who has been engaged in this business since 1856. The traffic amounts to about half a million tons per year, of which 80 per cent is lumber.

The passenger traffic is still carried on by the Ottawa River Navigation Company, founded in 1852. They operate a side wheel steamer, 5 feet draft, between Ottawa and Grenville, and a similar one from Carillon to Montreal via St. Anne and the Lachine rapids.

It will be seen that the early canoe traffic continued for 200 years till the bateaux began to be used between Lachine and Point Fortune about 1810.

In 1819, Mr. Wright's steamboat Union, between Hawkesbury and Hull, initiated the steam era in the valley. In 1825, steamers were run between Lachine and Point Fortune, and 12 miles of rapids from Carillon to Hawkesbury constituted the only break between Lachine and Hull.

The opening of the Carillon, Chute-à-Blondeau and Grenville canals in 1833 made continuous navigation to Bytown and thence by the Rideau canal to Kingston, where the lake schooner took the business, the steamboats descending the St. Lawrence rapids to Montreal.

This circuitous system continued in vogue till 1846, when the 9 feet draft canals down the St. Lawrence turned both the up and down traffic to that route.

DEVELOPMENT OF STEAM NAVIGATION ABOVE OTTAWA.

West of Ottawa, of course, the lumber trade required a navigation system. The first steamer on Deschenes lake was the Lady Colborne. Capt. Blackburn. Bouchette states, 1832, that it is "hoped the benefits of steam navigation will soon be secured", so the boat was probably launched, 1833. In 1846, the Emerald and Oregon (iron plate hulls) were built by Messrs. Egan and Aumond, thus inaugu-

rating the Union Forwarding Company, whose steamers did all the transportation for the valley west of Ottawa during the next thirty years.

The first step in this route was the eight mile drive from Ottawa to Aylmer, long famous as the Holt stage line. There was a good macadam road, and freight was forwarded by large wagons carrying as much as five tons in one load. Supplies for the lumber camps, pork, beans, molasses, tea and axes, chain and rope were hauled daily all summer to the steamer wharf at Aylmer.

A side wheel steamboat left Aylmer each morning for the Chats Falls, 25 miles up. Passengers were landed at a low level wharf in Pontiac bay, and elevated by a rising platform about 40 feet to the top of the rock cliff. They then embarked on a tram car drawn by two horses in tandem, and were carried three miles to the foot of Chats lake, where they boarded another steamboat that proceeded up the lake, and through the Cheneaux current at low water to Portage du Fort.

On Chats lake, the steamers Oregon, Alliance and Prince Arthur, all side-wheel boats of about 5 feet draft, did the freight and passenger business. During high water an auxiliary steamer was used between the head of Cheneaux island and Portage du Fort, because the current was then so swift that passengers and freight had to be landed at the foot of the island.

The more usual route, however, was for the Chats lake steamer to land her passengers at Farrell bay below Cheneaux current, whence they proceeded by stage to Cobden. Here a stern wheel steamer plied down Muskrat lake and river to Pembroke, following the ancient Indian trail over which Champlain passed in 1613.

From Portage du Fort to Bryson, 12 miles, stages were again in requisition as the Grand Calumet falls and rapids below prevented navigation.

The steamer Calumet ran from Bryson up the north channel to LaPasse, thence up Coulonge lake to Paquette rapid, which it was able to surmount and continue up the lake past Westmeath to the foot of Morrison island. Here the passengers walked up the length of the Allumette rapid and took a ferry to Pembroke, the capital of the upper Ottawa. During low water the steamer up Coulonge lake continued through the Culbute channel to Chapeau, where there was a stage line across the island and a ferry to Pembroke. The steamer Calumet was burnt and replaced by the Sir John Young.

This route from Bryson to Pembroke bid fair to become important and, after much agitation, combined locks, of wood, 200 feet long, 45 feet wide with 6 feet of water on the sills were built in 1877 to overcome the Culbute rapids. They were probably the largest wooden locks ever built, but were hardly used, as the railway was about that time extended to Pembroke and northwards completely diverting the traffic.

Above Pembroke there was uninterrupted navigation for forty miles through the beautiful Deep river to Des Joachims rapids. The first passenger boat on this route was the Pontiac in 1854, then followed the Pembroke 1860, the John Egan 1873, the Christopher O'Kelly, the Empress and the Ottawa, 1882. At present the Victoria, 1896, gives a daily service.

Above Des Joachims there was the steamer Kipawa to Rocher Capitaine, and between these rapids and those of Deux Rivieres, the steamer Deux Rivieres. The final stretch to Mattawa was made by the steamer Mattawa. But the glory departed from the route with the advent of the railway. First the passengers slackened, then the freight and then the rafts disappeared and the present boats are used for log towing alone.

Canals on the Ottawa River.

Carillon was a military post during the construction of the canal there by the Royal Staff Corps, in 1827.

Regarding this canal I quote from Mr. T. C. Keefer's Canals of Canada, 1894, page 17: "The St. Lawrence route was by the Royal Engineers considered to be too near the frontier for a military one. The influence of the Imperial government was exerted in favour of an interior route between Montreal and Kingston via the Ottawa and Rideau rivers. The Government of Upper Canada was offered financial aid in 1824 to undertake the Rideau canal, but declined upon the ground that the St. Lawrence would best serve the interest of the country. The British government decided in 1826, however, to carry out the inland communication which had been commenced upon the Ottawa at Grenville in 1819."

The Imperial Government operated these canals till 1856, when they were handed over to the provincial authorities. The 9-foot St. Lawrence canals, completed 1845, rendered the Rideau and Ottawa system commercially of little importance. All the canal records were burnt in the ordnance office, Montreal, during the riots of 1849.

The Carillon canal originally ascended 21 feet of a rocky bluff by two combined locks at the foot, the walls of which were formed by the rock cutting itself. It then descended 13 feet back into the Ottawa. The summit was supplied by a feeder from the North river. This canal may be traced upon the ground at the present day, and the two locks at Carillon and that at the upper end are in good enough condition to show all the details of construction. The length of the canal was 2-9 mile. A defensible house of stone is yet to be seen at the upper lock. The weir for feeding the summit from the North river can yet be traced, but is much fallen to decay. The locks were 106½ feet long, 19½ feet wide, with 6 feet of water on the sills.

About 3½ miles above the Carillon Canal was the Chute-à-Blondeau rapid, named after a resident drowned in the early days, but anglicized into "Shoot-a-Blunder". To overcome this a lock of 3.6 feet lift, with a short canal, was constructed along the main shore. The lock wall consisted of the natural rock, upon which a masonry wall was built, as the rock surface was not high enough. The lock gates are in place and the construction can be clearly traced.

One mile above the Chute-à-Blondeau was the lower entrance to the Grenville canal, which surmounted the Long Sault. The length of canal was 5¾ miles, with seven locks rising 45 feet. The three lower locks were first constructed of the same dimensions as the old Carillon canal below, that is 106½ feet to 108½ feet long by 19¼ wide, capable of passing vessels 96 feet long, 19 feet beam and 4½ feet draft. The four upper locks were, however, 129½ feet to 131½ feet long by 32¼ feet wide.

It appears that seven locks were constructed between 1819 and 1826, that is the three locks of the old Carillon, the Chute-à-Blondeau lock and the three lower locks of the Grenville Canal, of a length of 106 feet and width of 19½ feet, with 6 feet of water, but the remaining four locks on the upper end of the Grenville were made 129 by 32 feet with 6 feet depth. The Carillon locks and the Chute-à-Blondeau locks seem to have been enlarged to 129 feet by 32, but the three locks of the Grenville canal were still only 106 by 19 and limited the size of vessel until 1865 at any rate.

The St. Anne rapids were not included in the military scheme. There is only about 3 feet fall, and probably boats were towed up or passed the wooden lock at Vaudreuil. As the Lachine locks were only 100 x 24 x 4½ compared with 134 x 33 x 5 for the Rideau, it is possible that the intention was to have the military system of canals extend down the Back river instead of via St. Anne. The Grenville locks were commenced before the Lachine.

The St. Anne lock was begun in 1839 and completed June, 1843. It was 190 feet x 45, with 6 feet depth.

ENLARGEMENT OF OTTAWA CANALS.

The navigation between Carillon and Grenville was enlarged, in 1871 at Grenville and 1873 at Carillon. Carillon was completed in 1882 and Grenville in 1887. The traffic on the military canals between 1858 and 1867 had doubled, due to the rapid development of lumbering at Ottawa. A dam was built across the Ottawa river at Carillon, raising the water 9 feet and obliterating Chute-à-Blondeau rapid. The old summit canal at Carillon was abandoned, and a new one, three-quarters of a mile long, with two locks, constructed along the north shore.

The river stretch to Greece Point, at the foot of the present Carillon canal, is nearly six miles. The Grenville canal enlargement followed closely the old military canal, and the locks were used as weirs for the new canal. There are three locks in the lower mile and a half, then a three mile reach and two locks in the upper mile and a half,—total lockage, 45 feet. All the locks are now 200 feet x 45 x 9 feet of water, the scale fixed for the Ottawa and Lake Champlain route, but the Chambly canal has never been deepened, nor has the New York State canal between Lake Champlain and the Hudson river.

Storage Reservoirs.

EXTRACT FROM IMPROVEMENT OF RIVERS BY THOMAS AND WATT.

General.—Nature has indicated one satisfactory method of improving the navigability of watercourses, in the lakes which lie at the foot of mountainous regions and from which rivers flow. By them the length of the navigable season is increased and the danger from floods is decreased, and the lesson taught is that where artificial lakes or reservoirs can be constructed near the sources of streams, the waters falling in the various basins leading to these reservoirs may be usefully stored up. Not only will excess of water be thus held back while that entering lower down is making its escape, thus preventing a flood, but it may be drawn out as required by the necessities of navigation and to its great benefit.

About the year 1800 Thomas Telford, a distinguished civil engineer of England, wrote a work advocating the storage of flood-waters and urging its adoption for the improvement of the navigation of the river Severn. His idea was "to collect the flood-waters into reservoirs, the principal ones to be formed in the hills of Montgomeryshire, and the inferior ones in such convenient places as might be found in the dingles and along the river. By this means the impetuosity of the floods might be greatly lessened, and a sufficient quantity of water preserved to regulate the navigation in dry seasons, etc. This, it is thought, might now prove the simplest and least expensive mode of regulating navigable rivers, especially such as are immediately on the borders of hilly countries." Another English engineer, William Jessup, also gave the matter considerable thought, and expressed the opinion that "rivers may be rendered nearly uniform throughout the year by reservoir". Mr. Rennie, however, also an English engineer of distinction, ridiculed the ideas of Telford and Jessup in regard to the correction of floods by such means.

Charles Ellet, Jr., and Elwood Morris, both well-known engineers of their day, strenuously advocated the reservoirs plan for the Ohio River. In 1857, however, W. Milnor Roberts, one of the ablest authorities on river improvement this country has had, carefully investigated the plan and made the following statement:—"My own careful investigation of the subject of controlling the floods of the Ohio by means of artificial reservoirs satisfied my mind conclusively that such control by any human means attainable within the practicable limits of cost is impossible." Mr. Roberts gave his views in the Journal of the Franklin Institute in 1857. He

proved from an examination of the records of the floods on the upper part of the Ohio, that some of the highest floods occurred when such reservoirs, had they been in existence, would have been full. Such being the case, they could not have materially aided in restraining those floods, and this would certainly be the case almost every year owing to the irregularity of the periods when great floods occur.

"If by possibility there could be a gigantic dam 400 feet high at Wheeling, sufficient actually to stop and absolutely to control all the water of the 27,337 square miles of drainage above Wheeling, it could not restrain any portion of the flow from the remaining 189,663 square miles of the Ohio Valley, nearly seven times the area. We should even then have control of only about one-ninth of the Ohio River territory. As a practical engineer I cannot hesitate, therefore, in expressing the opinion, that the scheme of controlling or equalizing the floods of the Ohio River by means of artificial reservoirs is certainly impracticable; and that in any merely human view of the question it is practically an engineering impossibility."

This reasoning is applicable to many other cases as well as to that of the Ohio.

After the inundations which devasted France in 1846, 1856, and 1866, the question of reservoirs was widely discussed, as mentioned farther on, but their excessive cost prevented their application on a great scale, and a French authority has in recent years stated that "the idea of modifying immediately the regime of inundations by the creation of a system of reservoirs is now considered as unrealizable".

"Besides the Great Lakes of the St. Lawrence basin there are many other natural reservoirs in various parts of the world. In order to convey some idea of their geographical distribution, magnitude, and regulating influence upon stream-flow, the following list of the more prominent examples is presented:—

LIST OF PROMINENT EXAMPLES OF NATURAL RESERVOIRS.

Name of Lake	River System	Elevation above Sea-level feet	Area Sq. Miles	Percentage of Area to Entire Water shed	Storage in Billion C. ft. represented by a fluctuation of 1 foot	Remarks
Superior	St. Lawrence.	601.6	31,800	39.5	886.5	
Michigan	St. Lawrence.	581.2	22,400	32.9	638.4	Authority: Report of United States Deep Waterways Commission, 1896.
Huron	St. Lawrence.	581.2	23.200	30.8	646.8	
St. Clair	St. Lawrence.	575.3	495	7.3	13.8	
Erie	St. Lawrence.	572.8	10,000	34.5	278.8	
Ontario	St. Lawrence.	246.3	7,450	22.6	207.7	
Baikal	Yenisei	1,360.0	12,430	6.0	346.5	Encyclopaedia Britannica. Watershed scaled from map.
Victoria Nyanza	Nile	4,000.0	27,000	24.0	752.7	Encycl. Brit. Watershed scaled from map Accuracy only app. as data are of doubtful authenticity.
Albert Nyanza	Nile	2,300.0	2,000	12.5	55.8	
Tanganyika	Congo	2,700.0	12,650	12.0	352.7	
Nyassa	Zambesi	1,600.0	9,000	24.0	250.9	
Titicaca	Desaguadero.	12,600.0	3,200	17.0	89.2	
Geneva	Rhone	1,218.0	223	8.0	6.2	Encycl. Brit. Watershed scaled from map
Constance	Rhine	1,306.0	208	4.0	5.8	
Neuchatel	Rhine	1,421.0	92	11.9	2.6	
Como	Po	670.0	64	4.0	1.8	
Maggiore	Po	646.0	83	3.3	2.3	
Garda	Po	320.0	135	19.4	3.8	
Yellowstone	Missouri	774.1	139	15.9	3.9	U. S. Gov. Reports.

"The moderating influence of any of these lakes upon the streams below them is, of course, very great. Lake Gereva, for example, in the great flood of 1856 discharged only 11,400 cubic feet per second at the maximum, as against 56,480 cubic feet which it was receiving from its watershed."

"In Italy the lakes on several of the northern tributaries of the Po have long been noted for the control which they exercise over the streams flowing through them. The violent and destructive floods which are characteristics of other tributaries of the Po are largely absent from those streams which flow through the lakes."

"The flow of the Rhine in its upper source is said to be subject to much less variation than other streams similarly conditioned except as to natural reservoirs."

"There are many thousands of other lakes scattered over the globe that act as regulators of the streams which drain them, their efficiency in this respect being proportional to the percentage which their areas bear to the tributary watersheds. Certain it is the aggregate influence of these reservoirs is very great, and the striking difference often noted in the characteristics of the flow of the streams with similar watersheds may largely be traced to this cause."

Artificial reservoirs.—"While it is impracticable to imitate nature on the scale of her own work in the construction of reservoirs, her example has nevertheless

been followed very extensively on a smaller scale. In fact, works of this character have been built for a variety of purposes since the remotest antiquity. The storage of water for feeding canals is a prominent example. The greatest reservoir systems yet constructed have been designed to maintain the navigable condition of natural waterways. Many reservoirs have had as a prominent reason for their construction the prevention of floods in the valley below them, although this has seldom if ever been an exclusive reason. Storage of water for city supply, the development of power, and other industrial uses, is one of the most familiar of modern enterprises. Finally the field of irrigation, which already presents many examples of great reservoirs, bids fair to outstrip all other fields in the production of works of this character. In all these examples of reservoir construction the purpose has been to correct the inequalities of nature—to prevent the rapid and destructive flow of rivers at seasons when not needed, and to augment and re-enforce that flow when the need does exist."

"One of the most extensive artificial systems ever built is to be found in Russia at the head waters of the Volga and Msta rivers. The Volga River, the greatest in Europe, 2,325 miles long, and navigable nearly its whole length, rises in the province of Tver, within 200 miles of St. Petersburg, and empties into the Caspian Sea in the opposite extremity of European Russia. The Msta River has its sources interlaced with those of the Volga, but flows in the opposite direction, and its waters find their way, through the Volkhoff River, to Lake Ladoga, and ultimately to the Baltic Sea."

"The sources of the Volga and Msta are in a flat, marshy, wooded country, about 665 feet above sea-level, covered with innumerable lakes, presenting conditions not unlike those which prevail at the sources of the Mississippi River in our own country. For a long period in the past these two river systems were connected by artificial waterways, and the seaport of the upper Volga was upon the Baltic. The extreme low water which is characteristic of the Volga and other Russian streams prevents navigation in their natural condition except in seasons of high water. To ameliorate this condition, advantage was early taken of the exceptional reservoir facilities offered by the lakes referred to, and dams of a cheap character were constructed across their outlets. The reservoir system has now been developed to great perfection and effects an important improvement both in the Volga and the Msta, rendering them navigable for nearly three months longer than they would be without this aid."

"These reservoirs store about 1,250 square mile feet of water in all, of which 700 square mile feet can be used in the Volga and 700 square mile feet can be turned in the other direction, there being apparently a storage of about 200 square mile feet that can be used in either direction. The largest and most important of these reservoirs, and one of the largest in the world in point of capacity, although insignificant in depth and containing-dam, is the Verkhnevoljsky reservoir. So slight is the fall of the stream in this region, that, although the dam produces a maximum elevation of water-surface at its site of only about 17.5 feet, the water backs up a distance of about 60 miles and includes several lakes. The low-water season capacity of this reservoir is about 500 square mile feet, and the average season storage is much greater. Its effect upon the low-water flow of the river below the dam is to raise its normal surface 2.8 feet at Rjef, 96 miles below; 1.4 feet at Tver, the mouth of the Tvertsa, 212 miles below; and 0.14 foot at 410 miles below. At the mouth of the Tvertsa the storage of the Zavodsky reservoir comes in and helps out the navigation below. The total navigable distance on the Volga over which the beneficial influence of these reservoirs is felt is upward of 450 miles."

"On the Msta slope there are no fewer than ten important reservoirs, all of them being on the sites of natural lakes, the total storage aggregating about 500 square mile feet. As already stated, about 200 square mile feet of storage which

really lies on the Volga slope, including the Zavodsky reservoir, formerly was and still can be turned into the Baltic drainage. This entire system of summit reservoirs that can be used to feed the Msta is called the Vychnevolotsky system. It affords material improvement to the navigable condition of Msta and Velkhoff rivers during the period of low water."

"The system of reservoirs just described is certainly a great success, and upon it much of the prosperity of the surrounding country depends. It is probably the most complete example in the world of the joint results of flood prevention and the improvement of navigation produced by artificial reservoirs. It has an importance, however, which it could not have in this country, even with equal physical advantages. for railroads here do a far grater proportion of the transportation business than in Russia. But the example shows how far favorable natural conditions can be made to improve the low-water conditions of streams."

"The largest artificial-reservoir system ever yet constructed is that at the head waters of the Mississippi River. The natural conditions prevailing in that region are very similar to those in Russia just described. The country about the sources of the Mississippi. where the reservoirs are constructed, is about 1,200 feet above sea-level. It is dotted with an immense number of lakes, the total number having been estimated as high as a thousand. Some of the larger of these lakes afford exceptionally favorable opportunities for the inexpensive storage of water. The dams required are low structures but the area over which the water is raised by them is so extensive that the cost per unit of volume stored is probably the smallest ever yet realized."

"These remarkably favorable natural conditions for the storage of water have long attracted public attention and were made the subject of an able official report by Gen. G. K. Warren as early as 1870. Exhaustive surveys followed at a later date, and in 1881 actual construction was begun. Up to the present date there have been constructed five reservoirs. each with an aggregate capacity of 3,350 square mile feet, at a total cost of $678,300."

"The average annual storage of these reservoirs is estimated at about 1,400 square mile feet, equivalent to about 5,200 cubic feet per second for a period of ninety days. This supply is estimated to increase the gauge height at low water at St. Paul, 357 miles below, from 1 to 2 feet."

"The original investigations. embracing the States of Minnesota and Wisconsin, indicated a practicable storage in Minnesota of 3,400 square mile feet. and in Wisconsin of 2,800 square mile feet, or a total in the two States of 6,200 square mile feet. There is probably little doubt that the system could be extended so as to secure a storage of 5,380 square mile feet in the two states. an equivalent of about 20,000 cubic feet per second for ninety days. From the results already obtained. it is probable that this storage would not cost above $2 per acre-foot. The effect upon the navigable stage of the river would. of course, vary with the locality considered, and would diminish rapidly with the distance down stream. But considering that such an improvement is of the most permanent character. depending only upon the maintenance of the dams for its perpetuity. the above cost cannot be considered excessive when compared with the vast outlay for the mere temporary improvement of these rivers by present methods. A permanent increment of from 10,000 to 20,000 cubic feet per second to the low-water stage of even so large a stream as the Mississippi River is not to be passed over as a matter of small importance."

"The Volga and the Mississippi rivers constitute the only two systems of artificial reservoirs yet constructed. and the only ones designed to improve the navigable condition of streams in their natural condition."

"The construction of reservoirs to feed artificial waterways has been resorted to extensively, particularly in France. and to a considerable extent in this country.

Inasmuch as the expenditure of water in canals is a matter of very exact determination, the storage required for this purpose can generally be estimated with great definiteness."

"The construction of reservoirs for municipal purposes is too common a matter to require particular mention. It is sufficient to say that nearly every city in the world of above 100,000 population has storage facilities of greater or less extent to help out its water-supply."

"The principal development of storage reservoirs for irrigation purposes has taken place in Spain, in France and in Algiers, in India, and in the United States."

"For such industrial purposes as the operation of factories and the like many reservoirs have been constructed both in France and in this country. They are generally of small capacity, and costly per unit of water stored, but profitable on account of the great use made of the water. Some of these reservoirs serve an important purpose in protecting the valleys below from floods."

Effects on Floods.—"Every reservoir built along the course of a stream is, to some degree, a protection against floods in the valley below. The extent of this protection depends, of course, almost entirely on the ratio of its capacity to the flood discharge. A reservoir that can store the entire flow of a stream is an absolute protection against floods for a considerable distance below. It is difficult to propose any general rule for the extent of this control, but, assuming a general similarity of watershed, it would seem not unreasonable to say that it ought to be decisive to at least such a distance below as will give an additional watershed to a stream equal to twice that above the reservoir. This is simply saying that, in the general case, the reduction of a flood wave by one-third of its volume will rob it of its destructive character."

"But in a great many cases this control extends very much farther. For example, in the case of a flood caused by the rapid melting of snows in the mountains, reservoirs below which can impound this flood will protect the entire valley so far as its destructive influence would otherwise have reached. When it is remembered that the volume of a destructive flood is only a part—probably always less than half—of the total flow of a year, it will be admitted that a storage capacity equal to one-fourth of the run-off, well distributed throughout a watershed, will practically eliminate the evil effects of floods in its streams, and supply a percentage sufficient for the purposes of irrigation."

"It is not necessary, though important, that a reservoir should be empty when a flood comes. Even if full, it still moderates the flow of the stream below, the effect varying directly with the superficial area of the reservoir when full, and inversely with the capacity of the spillway. In this respect it acts precisely as does a natural lake. For example, if the spillway of a reservoir or the outlet of a natural lake be of such dimensions as to require a considerable increase in the depth of water to give much of an increase of discharge, every increment of this depth of outlet is also an increment of the same depth over the entire reservoir. A flood passing such a reservoir will be reduced by the storage resulting from this increment, and before it can produce a full discharge it must fill the reservoir to the necessary height above the bottom of the spillway. A large reservoir is, therefore, even when full, always a perfect protection against sudden floods. In the case of long-continued floods it greatly retards the arrival of maximum effect and gives ample notice of its approach."

"In fact, this is a very important feature of reservoir action, even where the capacity of the reservoir is not sufficient entirely to prevent the flood. It does prevent freshets—that is, sudden floods—and in smaller streams it is often the suddenness quite as much as the magnitude of floods that causes damage and loss of life."

"A reservoir ceases to be any protection if a flood continues long enough to fill it to such a height that the discharge at the outlet is equal to the entire inflow

The same is true of the restraining influence of forests. A sudden and heavy precipitation of short duration, which might produce a severe freshet in a deforested region, would probably experience considerable retardation, and even reduction, if it should fall upon a forest-covered region; but if the rains continue long enough to exhaust the retentive capacity of the forest soil, to fill all the springs and replenish the ground storage, then forests cease to be any protection whatever. In fact, the presence or absence of forests in a vast watershed like that of the Mississippi River is without appreciable influence upon the great floods."

"In the case of floods, which are the results of combinations of discharges from the various tributaries, reservoirs may actually operate to increase the combination. Take for example the natural reservoirs at the sources of the Mississippi. While they restrain the flood excess in that stream, they keep up a heavy flow for some times after the flood has passed. If this larger flow happens to come in with a flood crest at the junction of some tributary below, it will actually increase the combination over what would have been the case without the reservoirs. In the French investigations, presently to be described, the dams proposed for restraining floods were to have open sluiceways without means of closing them. In the ordinary flow of the stream all the water could pass through. But they were to be so proportioned that when the flow should pass a certain point the surplus would be retained in the reservoir, the outflow being always limited by the capacity of the open sluices. The arrangement was, therefore, precisely like that of a natural lake without a dam across the outlet. The outflow could never be entirely restrained, and it would increase in proportion to the height of water in the reservoir. Now, in the case of a large stream like the Rhone, where flood combination is the really dangerous thing, it was found that these reservoirs, had they actually been constructed, would have increased certain floods. They would have maintained a heavy retarded flow on some tributaries which in their natural condition would have entirely run out before the arrival of floods from other tributaries. As it happened, this retarded flow in the one case would have come upon a flood crest in the other, and would actually have increased the natural combination. This, of course, could not be true of reservoirs with closed sluices, unless, as above stated, the reservoirs were entirely filled with the flood passing over them."

"It is, therefore, clear that the efficiency of reservoirs in moderating great floods would have to be a matter of judicious management in controlling combinations quite as much as of actual capacity."

"Another matter to be noted in this connection is that flood protection and industrial use are not entirely compatible objects. To serve the former purpose alone the reservoir should be kept empty until the flood arrives, so that its whole storage may be available. But this might leave the reservoir only partly filled when its supply is needed for other purposes. Generally, therefore, the whole capacity of reservoirs built for these joint purposes cannot be counted on for flood protection. It would probably be unsafe to allow a higher efficiency in this respect than 50 per cent."

"For reasons to be fully considered further on, very few, if any, reservoirs have been built for the exclusive purpose of protecting against floods the valleys below them; but there are numerous examples where this has been an important consideration in their construction. Two cases may be cited in France. The celebrated dam at the Gouffre d'Enfer, on the river Furens, near St. Etienne, was built largely to protect St. Etienne from the destructive freshets of the Furens. It was of course expected to make use of the stored water for industrial purposes, which in a thickly populated district could not but be important. As to the results obtained, the expectations in regard to flood protection have been fully realized."

"The Ternay Dam likewise had as an important motive for its construction the protection of the town of Annonay from the floods of the Ternay, although

in this case, as in that just cited industrial uses of the stored water were considerations of great weight. The result of this work, as to flood protection, has been a success."

"There are certain reservoirs in Germany, as that at Dahlhausen, on the Wappen, and another in the valley of the Bever, which serve very much the same purpose as do those at Furens and Ternay in France, and exercise an important influence upon the floods in their respective valleys. Various similar works have been constructed in other parts of Europe, but all have other motives in addition to that of flood protection to justify their construction."

"The systematic creation of a comprehensive system of reservoirs on any river for the sole purpose of mitigating the severity of floods has never been undertaken. The subject has, however, received exhaustive study, and some examples of such studies will therefore be of importance in this connection. By far the most important of these studies, as might have been expected, is to be found in France. It took place during the reign of Emperor Napoleon III., as a result of the floods of 1856. These floods were among the greatest and most destructive that had ever visited France, and aroused a great deal of interest in the question of their future prevention. Among the various proposals which were brought forward at the time was that of constructing reservoirs at the head waters or on the tributaries of the various streams, among which particular attention was given to the Rhone, Garonne, and Loire. These investigations were ordered by the Emperor under date of July 19th, 1856, and resulted in the most exhaustive analysis of the whole subject and in reports of great scientific value. They embraced the three streams above mentioned, and the regult was adverse to the project so far as the Rhone and Garonne were concerned and favorable as to the Loire. A brief résumé of the reports will here be given."

"*Rhone river.*—The damages wrought by the flood of 1856 in the Rhone Valley were extraordinary. Over 540,000 acres of rich valley lands were submerged and the newly started crops were destroyed. The injury to bridges, dikes, revetments, and other river works was very great, as was also the destruction to the towns and cities situated along the stream. The total damages on French soil in the Rhone valley were estimated at not less than $6,000,000."

"So great a disaster in one of the most populous sections of France naturally led to inquiries into the possibility of preventing a recurrence of it. Napoleon III, who had taken a great interest in public works and favored a liberal extension of them, ordered an elaborate investigation of the subject: first, as to the immediate protection of great centers of population, and second, as to the practicability of modifying the regime of great watercourses for the protection of the bottom lands by a diminution of floods by means of reservoirs established near the head waters of the tributary streams."

"The first part of the programme, viz., the protection of the river towns by works intended to confine the floods to proper limits, was reported practicable at a total cost of about $4,000,000. The second part of the programme, viz., the question of reservoir construction, was considered in great detail and with a thoroughness of study which makes it the best existing example of what may be expected from similar works in other localities."

"The River Rhone has a total length of about 447 miles and a watershed of about 36,670 square miles. Three hundred and thirty-six miles above its mouth is Lake Geneva, an immense natural reservoir with an area of 223 square miles. Below Lake Geneva, at the distances given, the main stream receives the following important tributaries:

"The Arve, 1¼ miles below the outlet of the lake, drainage area 2,422 square miles; the Ain, 110 miles, drainage area 1,355 square miles; the Saône, 131 miles, drainage area 11,019 square miles; the Isère, 179 miles, drainage area 4,360 square miles; the Ardèche, 225 miles, drainage area, 938 square miles; the Durance, 272

miles, drainage area 5,716 square miles. The drainage area of all the other tributaries is about 7,200 square miles. The drainage area tributary to Lake Geneva is 2,663 square miles, of which 2,078 square miles pertains to the Rhône above the lake."

"The flood of 1856 in the valley of the Rhone was practically a simultaneous affair in all parts of the valley. Only in the upper portions was there any apparent progression. The maximum occurred at the mouth of the Arve thirty-six hours before it reached the mouth of the Ain, 108 miles below; but for the entire remainder of the river the maximum occurred on the same day, with a variation of only a few hours. The causes that led to the flood were therefore operating throughout the entire valley, swelling all the tributaries at once, and in consequence causing a simultaneous elevation of all portions of the main stream."

"The following table shows some of the characteristics of this flood, and gives an admirable illustration of the effect of natural reservoirs in moderating the flow of a stream. It will be observed that the flow of the Rhone just above the Arve indicates a run-off of only 4.3 cubic feet per second per square mile. As a matter of fact, the upper course of the Rhone was discharging into the lake 42,360 cubic feet per second, or 21 cubic feet per second per square mile, which would indicate for the entire watershed above the Arve, including that of Lake Geneva itself, 56,480 cubic feet per second. The storage of Lake Geneva accounts for the difference, and actually reduces the flow of the upper Rhone by about 45,000 (56,480-11,472) cubic feet per second.

Name of Stream	Drainage Area sq. Miles	Discharge Second-ft.	Rate of run-off per sq. mile per second
Rhone above the Arve	2,663	11,472	4.3
The Arve	751	24,710	31.0
The Ain and smaller tributaries below Arve	3,777	161,674	43.0
Saône and smaller tributaries below Ain	11,264	49,420	4.0
Isere and smaller streams below Saone	6,079	92,662	15.0
Ardeche and smaller streams below Isere	2,916	80,307	27.0
Durance and smaller streams below Ardeche	7,232	70,600	10.0
Durance to the sea	1,569		
Entire River	36,352	490,670	14.0

"Again, it will be seen that the discharge of the great tributary, the Saône, is at a rate of only 4 second-feet per square mile. Although there is no lake forming a reservoir in this valley, as in that just described, the slope of the lower portion of the valley for 100 miles above Lyons is so slight that floods do not pass off rapidly, but fill up the bottoms over 166 square miles to a depth of 10 feet or more, giving a storage of upward of 50,000,000,000 cubic feet. If the flow of this stream had been as great per square mile of watershed as that of the Rhône above Lyons, without the moderating effect of Lake Geneva, it would have been about 363,000 cubic feet per second instead of its actual flow of about 50,000 cubic feet. Without the storage effects of Lake Geneva and of the Saône valley, the discharge of the Rhône at Lyons would have been about 600,000 cubic feet instead of its actual discharge of less than 250,000 cubic feet. The great influence of these two natural reservoirs in moderating the flood discharge of the Rhône at Lyons is thus clearly apparent, and it is evident that without them the range between high and low water, or the ratio of minimum to maximum discharge, would be much greater than it actually is. It would not, however, be correct to infer from this that the

destructive power of the great floods of the Rhône would, under the above supposition, increase in the same proportion as the discharge itself. Nature adapts the channels of streams to the work required of them, and if the flood flow of this river were greatly increased undoubtedly it would carve out a deeper and wider bed, and would carry away, within the limits of safety, a much larger volume of water than it does at present. Thus, while the absence of these natural reservoirs would, probably, to some extent increase the destructive power of the floods of the Rhône, it would not do so in anything like the same proportion in which it would augment the flood discharge at Lyons."

"When, in the course of their investigations, the French engineers undertook to supplement the effect of these natural reservoirs by artificial ones, they were confronted with practically insuperable obstacles. Nature had not provided suitable localities, and an exhaustive study of the whole basin gave only the following meager results:—

"Lake Geneva could be so dammed at the outlet as entirely to cut off its discharge at the time of flood."

"The Arve and its tributaries, being mostly torrential streams, afford very few good reservoir sites. In fact only one was deemed worthy of consideration, and its capacity was only 706,000,000 cubic feet. This would be of no use to the upper Rhône, which flowed between high banks not subject to overflow, and by the time it reached Lyons its effect would be wholly inappreciable. The reservoir would cost $400,000, besides the destruction of valuable bottom lands. This project was therefore not considered practicable."

"The next site in passing down stream is what is known as the Lac du Bourget, situated to the east of the river and forming a kind of natural reservoir in times of flood. It was proposed to carry this natural action still farther by damming the Rhône. Its natural storage capacity is 3,350,000,000 cubic feet, and this could be increased to 5,824,000,000 cubic feet. It was calculated that this storage would diminish the flow of the Rhône at the moment of flood by 35,000 cubic feet per second, and would diminish the height of the flood at Lyons by 2.3 feet. The cost of this work would be about $4,000,000."

"No further reservoir sites of importance were found above the junction of the Ain. In this valley there are several feasible sites, whose aggregate capacity would be nearly 2,000,000,000 cubic feet. The cost would be about $1,400,000. The estimated effect at Lyons on a flood like that of 1856 would be to reduce the height of the flood by about 1 foot."

"No reservoirs were recommended for the Saône, because none that could be found would have any appreciable effect as compared with the vast natural reservoir formed by the lower part of the valley already alluded to, and would have almost no influence on the discharge of the main stream at Lyons."

"Below Lyons the immediate valley of the main stream offers no opportunities for large reservoirs."

"The first large tributary on this section of the river, the Isère, was carefully studied, but no situations were found which were considered favorable. The alluvial and unsatisfactory nature of the foundation for dams, the necessity of condemning valuable bottom lands, the small aggregate result possible of attainment under the most favorable circumstances, rendered the project wholly unadvisable."

"The valley of the Ardèche likewise contains no feasible reservoir sites."

"On none of the other tributaries were suitable sites found until the Durance was reached. The valley of this stream, which is one of the largest affluents of the Rhône, offers several good sites, and it was found practicable to store 11,366,600,000 cubic feet of water at a cost of about $6,600,000. The result, however, was altogether insignificant. The Durance enters the Rhône far down the valley of

that stream, where its flood discharge is already very great. The effect of the proposed reservoirs on the flood of the Rhone immediately below the junction would be to diminish its height by less than 1.3 feet."

"The following tabular summary shows the magnitude and cost of the foregoing works:—

Reservoir	Capacity Cubic feet	Cost.
Lake Geneva	2,294,500,000	$1,000,000
Valley of Arve	706,000,000	400,000
Lake du Bourget	5,824,000,000	4,000,000
Valley of Ain	2,000,000,000	1,400,000
Valley of Durance	11,366,600,000	6,600,000
Total	22,191,100,000	$13,400,000

"The result of these works and of this expenditure may be summarized as follows:—

"Over the 24,700 acres of submergible lands the depth of overflow would be reduced from 2.2 to 3.2 feet. But this would not entirely prevent submersion, and the necessity for dikes would exist as before. Through Lyons, the flood height would be reduced possibly 3 feet, but would save none of the special works of protection and would but slightly diminish their cost. From Lyons down the diminution of height of flood would be as follows. Below mouth of Saône, 1.3 feet; at Tournon, 0.8 foot; at Valence, 0.6 foot; below Valence, inappreciable. The effect of the proposed reservoirs in the valley of the Durance on the floods of the Rhône below the junction of the two streams would be to diminish the flood height at Beaucaire 1.3 feet; at Arles, about 0.5 foot; below Arles, not at all."

"The effect of these reservoirs, therefore, although considerable in absolute magnitude, would not be sufficient, in comparison with their great cost, to justify adoption and the project was reported upon adversely by the engineers."

"This report does not deal with the low-water flow of the Rhône at all, nor with the effect which this storage would have upon the interests of navigation. Undoubtedly it would be much greater than in the control of floods. For example, the 10,000,000,000 cubic feet of water that could be stored upon the upper Rhône and the Ain would provide a flow of about 4,000 second-feet for one month, or 1,300 second-feet for three months, and could undoubtedly be so regulated as to be of considerable advantage to navigation. The increase for a period of one month only over the low-water flow at Lyons would be nearly 50 per cent."

"*Garonne River.*—Similar studies to those just described were also made in the case of the Garonne, which had likewise suffered severely from the floods of 1855 and 1856. Without reviewing these studies in detail, the following conclusions may be stated in the language of the report:—

"Reservoirs, when their capacity is great enough, have a very powerful effect in diminishing the flood discharge of the streams on which they are built, but their influence diminishes enormously with distance; and inasmuch as suitable sites can be found only in the mountainous regions, far removed from the bottom lands to be protected, it may readily be seen how slight must be their influence on the flood heights in the valleys far below... To reduce such a flood (as that of 1855) to the height required in order to contain it within the proposed system of dikes would require a storage capacity exceeding 33,000,000,000 cubic feet, and would cost $24,000,000.....

"Other objections of a fundamental character as to all reservoirs have already been stated."

"The conclusion arrived at, therefore, is that the idea of reducing the floods of the Garonne by means of artificial reservoirs must be abandoned."

"*Loire River.*—The studies devoted to this question in the case of the river Loire were more favorable to the use of reservoirs. This was owing to the more favorable conditions which prevail on that stream. The main stream is formed by the union of the upper Loire and the Allier near the city of Nevers at the Bec d'Allier. The Loire is subject to the most extreme variations in the matter of flow. At the junction of the two streams, for instance, it varies for about 10,000 cubic feet per second to 350,000 cubic feet. The floods in the lower river are ordinarily rendered harmless by the arrival, at different times, of the floods from the various affluents: but when the conditions cause the simultaneous arrival of flood-crests from several tributaries the results are liable to be of the most serious character."

"The floods of the Loire river have always been a matter of great moment to the interests of the valley, and have led to extensive works for their control. In the studies above referred to the use of reservoirs on certain portions of the streams was recommended, viz., upon the upper Loire and the Allier. These two streams heading in the south-central part of France, flow north nearly parallel to each other at distances scarcely over 50 miles apart. Their drainage areas are 7,000 square miles and 4,500 square miles, respectively. The geographical, geological, and meteorological conditions are essentially the same for the two streams. They rise in high land some 4,500 feet above the level of the sea. The mountain slopes are steep and the soil of a very impervious character. The result is that the run-off responds quickly to the rainfall; floods are quick and of short duration; and the curve of the flood-wave at any point is sharp in character, i.e., very high compared with its length. The conditions in the two valleys are so similar that the crests of floods reach the junction very nearly at the same time, being only two or three hours apart in the great flood of 1856. The curves of discharge of the two streams, both accentuated in character, are superimposed upon each other, producing a curve of relatively the same relief, but absolutely nearly twice as pronounced, as in the case of either tributary."

"The union of two such considerable tributaries with floods of the nature above described gives character to the flood-wave of the united stream for a great distance below, or until the accession of tributaries reaches an extent that may exert a marked modifying influence. But it is stated that the sharp form of the wave does not entirely disappear even to the mouth of the river."

"The flood conditions, therefore, prevailing from Nevers for a long distance down are those of extreme height but short duration. Were it possible to cut off the upper part of this curve and retain the water which it represents, thus reducing the flood curve to the normal form of the other principal tributaries, the floods would be brought within limits which would keep them between the dikes proposed to be constructed along the river."

"An examination of the valleys of the upper Loire and the Allier disclosed the following possibilities as to the storage of water:—

"In the valley of the upper Loire twenty-two reservoirs would store about 8,250,000,000 cubic feet of water, and would reduce to 111,653 cubic feet per second the flood-flow, which, without these reservoirs, would be 153,555 cubic feet per second at Bec d'Allier. In the valley of the Allier sixty-three reservoirs, storing about 10,000,000,000 cubic feet, would reduce to 104,664 cubic feet per second the flood-flow which, without the reservoirs, would be 167,675 cubic feet per second. The total reduction would therefore be about 95,000 cubic feet per second from a total flood-flow of 320,000 cubic feet per second, or a reduction of about 30 per cent. This would deprive floods of their destructive character as far down as to the mouth of the Cher, a distance of about 180 miles below the junction of the two streams."

"It is thus seen that the peculiarly favorable conditions existing on the upper Loire make possible an important reduction of flood-height for a certain length of

the river below Nevers. In the upper valleys, near the reservoirs, their effect would, of course, be far greater, and would effectually remove the possibility of flood."

"These proposed works, however, were of great magnitude, estimated to cost over $13,000,000, and they have never been carried out."

"A very interesting and exhaustive investigation, similar to those just described, has been conducted by German authorities in the valley of the river Alb. The study goes into too much detail to be given here, but its general conclusions are so in line with those of the French engineers that they cannot fail to be of interest. The report says:

"It cannot be denied that for the head waters of rivers, and also for the territory of small streams, the question might be solved. The Government of Wurtemberg investigated the matter and found that high floods could be prevented by means of reservoirs, but that the benefit would not be commensurate with the cost.... This investigation (the prevention of floods on the Alb) has proved that the construction of reservoirs for the purpose of keeping back the high water of the Alb, although possible, and with no doubt of their effectiveness, is still unjustifiable on account of the enormous cost."

"And again:

"There seems to be no doubt that the construction of a system of reservoirs on a large scale in the valley of the Alb is inexpedient, on account of the great cost."

"Particular emphasis is placed upon these studies, because they disclose the true obstacle to the use of reservoirs for the sole purpose of flood prevention. It is the cost, not the physical difficulties, which stands in the way. It may be stated that as a general rule a sufficient amount of storage can be artificially created in the valley of any stream to rob its floods of their destructive character; but it is equally true that the benefits to be gained will not ordinarily justify the cost."

"The reason for this is plain. Floods are only occasional calamities at worst. Probably on the majority of streams destructive floods do not occur, on the average, oftener than once in five years. Every reservoir built for the purpose of flood protection alone would mean the dedication of so much land to a condition of permanent overflow in order that three or four times as much might be redeemed from occasional overflow. One acre permanently inundated to rescue three or four acres from inundation of a few weeks once in three or four years, and this at a great cost, could not be considered a wise proceeding, no matter how practicable it might be from engineering considerations alone. The cost, coupled with the loss of so much land to industrial uses, would be far greater than that of levees or other methods of flood protection."

"In fact, the examples of natural reservoirs already cited, while they show conclusively the vast beneficial influence of large reservoirs upon the flow of streams, also disclose the fatal obstacle to their successful imitation by man. In only very few places has nature prepared sites where man can erect works which will create large bodies of water, and even if she had done so the gain from utilizing them would not equal the loss. The reservoir system of the Great Lakes involves the perpetual withdrawal from agriculture and industrial uses of an area nearly twice the size of the State of New York. Were these areas not covered with water, but occupied as the surrounding country now is, yet so fitted by nature that man, at slight expense, could convert then into great lakes, as at present, the utter impossibility of such a measure is evident at a glance. And so it will be found in general that the surface of the earth, where reservoirs could be built on an extensive scale, is liable to be of more value in its present condition than it ever could be if covered with water."

"The construction of reservoirs for flood protection is not, therefore, to be expected, except where the reservoir is to serve some other purpose as well, and inasmuch as such purposes are not ordinarily extensive enough to develop systems of reservoirs, upon which, rather than upon isolated works, the control of great

floods depends, this large control is hardly one of the possibilities of the future. The only probable exception is that of a reservoir system on the watershed of the Missouri River, treated of in the next section of this report."

"For flood protection in isolated cases, however, and on a relatively small scale, reservoirs will undoubtedly continue to be built, particularly when they serve other purposes as well. From this point of view they will always be projects of public importance. The idea is well presented by the distinguished French engineer, P. Guillemain, former inspector-general of public works in France, who holds that the creation of reservoirs is of public utility in nearly all cases, either in flood prevention or in re-enforcing low-water flow, and that whenever special interests, such as industrial uses, irrigation, and the like, exist that will justify their construction, they become legitimate subjects for Government adoption."

"*The floods of the Mississippi and the Missouri.*—A belief that it is within the range of possibility to diminish materially the great floods of these rivers by means of reservoirs upon its tributaries has long been held. In a work well known in its day (The Mississippi and Ohio Rivers, by Charles Ellet, Jr., published in 1853), the author advocates this view with great vigor, and had his data been as correct as his argument he would have made out a good case. The subject was briefly reviewed by Humphreys and Abbot in their report upon the Mississippi River (1861), and the views of foreign engineers upon this method of river regulation were cited at considerable length. Although the authors of this report pronounced the scheme impracticable so far as the Mississippi is concerned, the idea has, nevertheless, continued to have its advocates from that day to this. It has occasionally found expression in public documents or acts of Congress. In the voluminous report of the Senate Committee on Irrigation, which forms Senate Report No. 928, Fifty-first Congress, first session, the committee say:—

"It is confidently believed that, with restraining dams to hold back the water of the numerous lakes found at the head waters of the various tributaries of these rivers, and reservoirs constructed at other suitable points, together with the aid of the natural flow of the streams, a very large extent of country, now comparatively worthless, could be made exceedingly productive, while the floods in the lower Mississippi would be greatly alleviated."

"During the past year two investigations have been ordered by Congress, having as one of their objects an examination of this reservoir question. Among engineers there are not a few of reputable standing in their profession who hold similar views to those expressed in the Senate report quoted above. With the general public the idea is almost an axiom, and it finds constant expression in the press, particularly when a great occasion like that of the recent Mississippi floods, calls attention to it. It has therefore seemed important to devote some especial care to the subject, and very soon after taking up the study I arranged to have Mr. James A. Seddon, United States assistant engineer, compile existing data on the Mississippi floods in such forms as to present the subject in its entire magnitude so that it can be readily understood."

"Few people have any adequate conception of either the origin or the magnitude of great floods like those on the lower Mississippi. It is a common error to think that they come largely from the melting snows in the mountains. Yet the floods of the Mississippi nearly all come at seasons when the flow from the mountains is very small. In the greatest known flood of the Mississippi at St. Louis, that of 1844, a large part of which came from the Missouri, the latter stream was found by pilots to be in low-water stage above Sioux City. On the occasion of the late heavy flood in the Mississippi, when at its maximum stage, the Arkansas carried practically no water across the Kansas-Colorado line, the Platte did not run above 2,000 cubic feet per second at North Platte, Neb., and the upper Missouri and Yellowstone were both in low-water stage. The floods of the Mississippi do not come from this direction. They are formed by the heavy rains in the low regions east

of the ninety-eighth meridian, and very largely come from east of the Mississippi itself. The great controlling element, in fact, in all the lower river floods is the Ohio River."

"The magnitude of these floods also depends very largely upon the fortuitous combinations of the floods in its tributaries. No single flood from any one of these tributaries, except the Ohio, can produce serious consequences in the main river. But if two or more of them discharge excessive floods in the main stream simultaneously, then it is that great disasters follow. Very fortunately, nature has caused these flood-waves to arrive generally at different periods, and the more disastrous combinations are not of frequent occurrence."

"It is apparent, therefore, that a reservoir system which should exercise any appreciable influence on the lower-river floods must embrace the three great upper tributaries, and particularly the Ohio. What the magnitude of the storage required would have to be may be inferred from the fact that the total discharge of the Mississippi at Cairo, above the bankful stage, during the late flood, was 2,368,000,000,000 cubic feet, or 4,250 square miles 20 feet deep, the assumed average depth of reservoirs. The largest artificial reservoir ever built—viz. that at Lake Winnebigoshish, Minn.—has a capacity of 45,000,000,000 cubic feet. To store all this excess would take fifty-two such reservoirs."

"While it might seem at first thought that this amount of storage could be found, still it would be very difficult to find it. Particularly on the upper Ohio and its southern tributaries favorable sites are understood to be of rare occurrence. It is, probable, however, that in all the watershed of the Mississippi sites could be found that would insure a reduction of a flood discharge at Cairo like that of 1897 by one-fifth of its maximum. The ease with which the writer was able to find storage amounting to 11,000,000,000 cubic feet in the State of Ohio at the very head waters of streams along the divide between Lake Erie and the Ohio convinced him that the natural facilities for storage are rather greater than is commonly supposed."

"As already stated, the difficulty is not so much a physical as a financial one. To store, say, 500,000,000,000 cubic feet of water, equivalent to 11,500,000 acre-feet would cost, even at the rate of only $5 per acre-foot, $57,500,000. This one fact condemns the project as a system for the exclusive purpose of flood prevention. But whenever such reservoirs have other and more immediate purpose for their construction the increment which each will form in the grand total necessary to produce some influence in the Mississippi floods is an element in its favor worthy of consideration."

"The only direct and effective reservoir project, if any such be possible, for impounding floods of such vast extent as those of the Mississippi is that pointed out by Mr. Seddon in the second part of his memoir. The project for utilizing St. Francis basin for this purpose would not only be following out and perfecting the plan upon which nature has operated for an indefinite period. If the overflow into this basin in a great flood like that of 1882 is equivalent to a depth of 6.5 to 7 feet upon its over-flowed area of 6,706 square miles, it is at least a reasonable question to ask why this flooded area cannot be reduced to one-half or one-third its present size, be given a depth twice or three times as great, and the water be prevented from flowing out until the following low water. The slope of 120 feet in the length of the basin would seem to make possible a division into separate reservoirs by means of moderate embankments such as Mr. Seddon suggests, making five or six basins of an average depth of 10 to 15 feet, with longitudinal levees to restrict the lateral area. The water thus stored (and it could be stored with such an arrangement, whether there were a high flood or only a moderate one) would give to the lower river in low water an increment (based upon the overflow of 1882) of 141,000 cubic feet per second for a period of one hundred days. This would give a low-water flow of at least 300,000 cubic feet per

second, and would radically improve the navigation of the Mississippi from Helena to the sea. From Helena up, the slack-water system through the basin itself, with five or six locks, would carry the deep water to Cairo. How far the imperfectly known topography of the St. Francis basin would lend itself to this project, and whether or not the cost would be prohibitory, exhaustive surveys alone can tell."

"On the Mississippi River the case with regard to reservoirs is somewhat different. The annual flood of that stream, which is known as the 'June rise', is essentially a head-water flood. The earlier floods are generally, although not always, from the lower river, and very rarely from the extreme upper sources. The June is the mountain flood, bringing down the snow-water, and generally augmented by the spring rains both in the mountains and on the plains below. Not infrequently it meets with heavy contributions all the way down, and is the result of a general high water over all its drainage area. Ordinarily, however, as already stated, it is a head-water flood, and coming as it does while the banks are still soft and yielding from previous high water, it does its full share of the destructive work peculiar to the Missouri River."

"That a complete system of reservoirs in the mountains and plains portion of the watershed of this stream, which should embrace its many tributaries and contain the waters from melting snows and spring rains, would materially reduce the magnitude of the June rise is highly probable. To take off the flood excesses at Sioux City, mentioned by Mr. Seddon in the first section of his memoir, would require a storage of, say, 48,400,000,000 cubic feet, corresponding to a reduction in stage of 2.8 feet. A storage of 100,000,000,000 would probably give the very material reduction of 6 feet. Allowing a reservoir efficiency of only 50 per cent, as elsewhere explained, and assuming that no one of the great floods of the Missouri has its origin in more than one-half of its watershed, it would seem that a reservoir system of 400,000,000,000 cubic feet, distributed over the watershed above Sioux City, would quite effectually control the floods of the river. This amount of storage is about the percentage of total flow required to be stored for irrigation, as hereafter explained, in order that the water of the arid region may be fully utilized. It must be understood that such a result can be predicted only from a system of reservoirs. The effect of any single reservoir would certainly be insignificant but the combined influence of many might be very important."

"Passing now to the question whether the benefits to the lower river from such a system would be of sufficient importance to justify the construction of reservoirs solely for the purpose of securing them, the answer must be distinctly in the negative. It is still true in this case, as in those already considered, that the benefit is not worth the cost. If, however, there are other and primary considerations, which of themselves would justify the construction of reservoirs, then their influence upon the floods of the lower river is a matter worthy of consideration. And when such primary interests are of a magnitude which looks to a comprehensive system throughout the watershed of the stream subserving interests of a public as well as a private nature, then the argument for Government assistance in such works stands upon a substantial basis. The point to be especially considered, in connection with such a reservoir system, is that river regulation must always be a secondary motive and more immediate and direct uses the primary motive."

Gages on Ottawa River, Tributaries, etc.

EXPLANATION OF TABLES.

The following tables of the water surface records in the Ottawa basin are in continuation of those published for the fiscal year 1909-10. They are presented in elevations above sea level as determined by the Department of Public Works (1904 to 1907), see Report on Precise Levelling, 1908.

The records at the various canal locks have been kindly furnished by the Department of Railways, and those for Sorel by the Department of Marine.

In connection with metering the flow of the St. Lawrence river water surface elevations at Coteau (head Soulanges Canal), Cascades (foot Soulanges Canal) are published for years 1903 to 1911 inclusive. In the same connection the surface elevations for years 1890 to 1911 inclusive taken at Sorel, Que.. have been tabulated.

Error Montreal Harbour. By mistake wrong elevations were published in the report 1909-10 and also in the Georgian Bay Ship Canal Report diagrams for the surface of Montreal harbour years 1903 to 1909 inclusive. Correct elevations for these years are published herein.

ELEVATIONS of Quinze Lake at Douglas Farm, during the year 1910–11.

TABLE No. 1.

Day of the month.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	854.85	858.35	857.75	856.25	855.35	855.65	855.65	856.85	856.05	855.45	854.65	854.25
2	854.85	858.35	857.75	856.25	855.35	855.65	855.65	856.85	856.00	855.45	854.75	854.25
3	855.05	858.25	857.75	856.15	855.35	855.70	855.75	856.85	856.00	855.45	854.70	854.20
4	855.25	858.25	857.65	856.05	855.35	855.70	855.75	856.85	856.00	855.45	854.65	854.20
5	855.45	858.25	857.65	856.00	855.30	855.75	856.35	856.90	855.95	855.45	854.65	854.20
6	855.75	858.25	857.65	855.95	855.25	855.75	856.75	856.90	855.95	855.50	854.65	854.20
7	856.05	858.25	857.65	855.95	855.25	855.75	856.95	856.85	855.90	855.50	854.65	854.20
8	856.35	858.15	857.55	855.90	855.25	855.75	857.05	856.85	855.85	855.50	854.60	854.20
9	856.35	857.25	857.55	855.90	855.25	855.70	857.15	856.80	855.80	855.50	854.55	854.20
10	856.65	857.25	857.55	855.85	855.20	855.65	857.15	856.80	855.80	855.45	854.45	854.20
11	856.85	858.05	857.45	855.85	855.20	855.60	857.25	856.80	855.75	855.45	854.45	854.25
12	857.85	857.95	857.45	855.90	855.15	855.55	857.25	856.80	855.65	855.45	854.45	854.25
13	857.85	857.85	.....	855.80	855.15	855.55	857.30	856.80	855.65	855.45	854.45	854.25
14	857.85	857.85	.....	855.80	855.15	855.55	857.25	856.65	855.65	855.45	854.45	854.25
15	857.85	857.85	.....	855.80	855.15	855.50	857.05	856.65	855.65	855.45	854.45	854.05
16	857.25	857.85	.....	855.70	855.15	855.45	856.95	856.70	855.65	855.35	854.45	854.05
17	857.35	857.85	.....	855.65	855.15	855.45	856.95	856.55	855.65	855.25	854.40	854.05
18	857.45	857.75	.....	855.65	855.15	855.45	856.90	856.60	855.65	855.15	854.40	854.10
19	857.55	857.75	.....	855.65	855.10	855.45	856.90	856.60	855.65	855.05	854.40	854.05
20	857.75	857.75	.....	855.60	855.10	855.45	856.90	856.60	855.65	855.05	854.40	854.05
21	857.85	857.75	856.75	855.55	855.10	855.45	856.90	856.45	855.55	854.95	854.35	854.05
22	857.95	857.75	856.75	855.55	855.10	855.45	856.90	856.45	855.55	854.85	854.35	854.05
23	857.15	857.75	856.65	855.50	855.10	855.40	856.90	856.50	855.45	854.75	854.30	854.00
24	857.15	857.65	856.65	855.45	855.05	855.35	856.85	856.35	855.45	854.70	854.30	854.00
25	857.15	857.65	856.55	855.40	855.05	855.35	856.85	856.40	855.50	854.70	854.25	854.00
26	857.15	857.65	856.50	855.40	855.10	855.35	856.90	856.35	855.45	854.75	854.25	854.00
27	858.25	857.65	856.45	855.40	855.30	855.40	856.95	856.35	855.45	854.75	854.25	854.00
28	858.35	857.65	856.45	855.40	855.45	855.45	856.95	856.35	855.45	854.70	854.25	854.00
29	858.35	857.65	856.40	855.40	855.50	855.50	856.95	856.25	855.45	854.70	.....	854.00
30	858.35	857.65	856.35	855.35	855.55	855.60	856.90	856.15	855.45	854.70	.....	854.00
31	.....	857.65	.....	855.35	855.65	.....	856.90	.....	855.45	854.70	.....	853.95

ELEVATIONS of Lake Timiskaming at Haileybury, during the year 1910–11.

TABLE No. 2.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	.....	.....	.....	582.20	579.20	578.70	578.85	584.20	582.50	579.65	579.30	582.25
2	.....	.....	585.70	582.10	579.20	578.70	578.90	584.20	582.40	579.60	579.50	582.40
3	578.50	.....	585.75	581.90	579.20	578.80	579.00	584.25	582.30	579.60	579.50	582.45
4	579.00	.....	585.80	581.60	579.20	578.80	579.30	584.25	582.20	579.55	579.50	582.55
5	579.50	.....	585.80	581.50	579.20	578.80	579.60	584.40	582.00	579.50	579.50	582.60
6	579.50	.....	585.80	581.60	579.15	578.80	579.85	584.50	581.00	579.45	579.60	582.70
7	580.50	586.30	585.75	581.25	579.05	578.80	580.20	584.60	.....	579.40	579.70	582.80
8	581.00	586.35	585.70	581.10	579.05	578.85	580.60	584.65	581.60	579.35	579.70	582.90
9	581.00	586.45	585.65	581.00	579.05	578.80	.....	584.70	581.50	579.35	579.75	583.00
10	581.50	.....	585.60	580.90	579.00	578.80	580.95	584.75	581.45	579.30	579.80	582.90
11	582.00	586.30	585.50	580.80	579.00	578.80	581.35	.....	581.30	579.25	579.90	.....
12	582.20	.....	585.50	580.80	579.00	578.80	.....	.....	581.20	579.20	579.90	583.00
13	582.50	586.20	585.30	580.60	578.95	578.70	581.90	.....	581.10	579.20	580.00	583.15
14	583.00	586.15	585.00	580.50	579.95	578.80	582.00	584.60	581.05	579.15	580.10	583.15
15	583.00	586.15	584.90	580.40	579.95	578.70	582.40	584.60	580.90	579.15	580.25	583.35
16	583.20	586.00	584.60	580.30	578.90	578.70	582.50	584.50	580.90	579.15	580.35	583.35
17	583.40	585.85	584.40	580.20	578.90	578.60	582.60	584.50	580.80	579.10	580.50	583.35
18	583.50	585.85	584.20	580.10	578.90	.....	582.75	584.45	580.70	579.10	580.60	583.35
19	.....	585.75	584.00	580.00	578.90	578.60	582.75	584.40	580.60	579.10	580.80	583.35
20	.....	585.60	583.85	580.00	578.85	578.50	582.80	584.40	580.50	579.20	580.95	583.35
21	584.00	585.50	583.60	579.90	578.80	578.40	583.20	584.20	580.45	579.20	581.10	583.40
22	584.35	585.40	583.40	579.75	578.75	578.40	583.30	584.00	580.40	579.20	581.25	583.40
23	584.45	585.30	583.25	579.70	578.70	578.35	583.40	583.80	580.40	579.20	581.45	583.40
24	584.70	585.30	583.00	579.70	578.65	578.35	583.60	583.65	.....	579.20	581.60	583.40
25	584.80	585.35	582.95	579.70	578.65	578.35	583.70	583.40	.....	579.20	581.75	583.45
26	585.10	585.40	582.90	579.50	578.60	578.40	583.80	583.25	.....	579.20	581.90	.....
27	.....	585.40	582.80	579.40	578.55	578.50	583.90	583.10	.....	579.20	582.00	.....
28	585.60	585.40	582.60	579.30	578.70	578.50	584.00	583.00	.....	579.20	582.15	.....
29	585.80	585.40	582.35	579.30	578.70	578.70	584.00	582.80	.....	579.20	.....	.....
30	.....	585.40	582.30	.....	578.70	.....	584.10	582.65	.....	579.30	.....	.....
31	.....	585.40	.....	579.25	578.70	.....	584.20	.....	.....	579.30	.....	.....

ELEVATIONS of Montreal River at Latchford, during the year 1910–11.

TABLE No. 3.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	898.70	900.50	898.50	896.35	895.40	895.75	895.40	897.50	896.55	895.40	894.90	897.25
2	898.70	900.40	898.70	896.30	895.50	895.60	895.45	897.45	896.50	895.35	894.95	897.25
3	898.90	900.30	898.80	896.25	895.50	895.55	895.55	897.65	896.40	895.30	894.95	897.25
4	899.00	900.10	899.05	896.10	895.60	895.55	895.65	897.80	896.35	895.25	894.95	897.25
5	899.10	899.90	899.00	896.00	895.60	895.50	895.75	898.20	896.20	895.20	695.10	897.30
6	899.15	899.50	899.10	895.85	895.65	895.40	895.90	898.40	896.20	895.20	895.35	897.35
7	899.20	899.30	899.10	895.85	895.75	895.30	896.15	898.55	896.15	895.15	895.60	897.30
8	899.35	899.10	898.90	895.75	895.85	895.20	896.30	898.50	896.10	895.20	895.90	897.30
9	899.40	899.00	898.70	895.75	895.70	895.10	896.55	898.45	896.10	895.35	896.30	897.35
10	899.50	898.90	898.40	895.70	895.75	895.05	896.90	898.40	896.10	825.25	896.75	897.20
11	899.65	898.75	898.30	895.70	895.75	895.05	896.95	898.40	896.10	895.15	897.35	897.20
12	899.70	898.50	898.30	895.65	895.70	895.10	896.90	898.35	896.00	895.10	897.35	897.30
13	899.70	898.40	898.20	895.65	895.60	895.10	896.70	898.30	896.00	895.05	897.35	897.25
14	898.60	898.20	898.15	895.60	895.70	895.00	896.60	898.20	896.05	895.00	897.35	897.20
15	898.90	898.00	898.05	895.60	895.65	895.00	896.50	898.10	896.10	895.00	897.30	897.20
16	899.30	897.90	897.90	895.55	895.60	894.95	896.45	898.05	895.95	895.00	897.30	897.20
17	899.70	897.80	897.80	895.60	895.50	894.90	896.65	897.95	895.95	895.00	897.35	897.25
18	899.80	897.70	897.70	895.55	895.40	894.90	896.45	897.90	895.80	895.00	897.40	897.25
19	899.80	897.65	897.60	895.35	895.40	894.90	896.40	897.80	895.70	894.95	897.40	897.30
20	899.80	897.60	897.50	895.20	895.25	894.85	896.40	897.75	895.70	894.95	897.40	897.35
21	899.85	897.55	897.30	895.15	895.20	894.85	896.40	897.60	895.65	894.95	897.35	897.35
22	899.90	897.50	897.15	895.20	895.20	894.80	896.50	897.55	895.65	894.95	897.30	897.30
23	899.90	897.45	897.10	895.15	895.10	895.80	896.90	897.50	895.60	894.95	897.30	897.25
24	899.90	897.45	897.00	895.10	895.05	894.75	897.45	897.35	895.60	894.95	897.25	897.25
25	900.00	897.60	896.80	895.15	895.15	894.80	897.50	897.25	895.60	894.95	897.25	897.25
26	900.00	897.60	896.75	895.15	895.20	894.85	897.50	897.00	895.60	894.90	897.30	897.30
27	901.10	897.90	896.70	895.15	895.30	895.00	897.50	896.90	895.55	894.90	897.30	897.40
28	900.90	898.00	896.60	895.15	895.50	895.00	897.60	896.80	894.90	894.90	897.30	897.30
29	900.55	898.05	896.50	895.10	895.70	895.10	897.55	896.70	895.50	894.90	.....	897.30
30	900.50	898.15	896.45	895.20	895.70	895.25	897.50	896.60	895.45	894.90	.....	897.30
31	.....	898.30	.....	895.30	895.75	.....	897.45	.....	895.40	894.90	.....	897.30

ELEVATIONS of Timiskaming Lake at Timiskaming Station, during the years 1910–11.

TABLE No. 4.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	577.75	585.35	584.90	581.65	578.95	578.60	578.55	583.80	582.20	579.35	579.05	581.90
2	578.10	585.55	585.10	581.55	578.95	578.45	578.60	583.85	582.05	579.40	579.30	582.05
3	578.35	585.70	585.20	581.50	578.85	578.40	578.65	584.05	581.90	579.40	579.20	582.20
4	578.60	585.65	585.15	581.40	578.80	578.50	578.90	584.15	581.75	579.20	579.20	582.25
5	578.90	585.60	585.00	581.10	578.85	578.55	579.20	584.20	581.60	579.20	579.25	582.35
6	579.50	585.60	585.15	580.90	578.90	578.50	579.75	584.30	581.50	579.10	579.40	582.45
7	580.10	585.70	585.15	580.85	578.90	578.65	580.00	584.25	581.35	579.00	579.40	582.45
8	580.40	585.65	585.05	580.65	578.80	578.45	580.10	584.30	581.30	579.05	579.40	582.45
9	580.85	585.60	585.00	580.65	578.70	578.55	580.75	584.30	581.20	579.15	579.50	582.60
10	581.25	585.70	584.85	580.50	578.75	578.50	580.85	584.30	581.05	578.95	579.65	582.75
11	581.60	585.65	584.80	580.50	578.80	578.35	581.20	584.35	581.00	578.95	579.65	582.55
12	581.90	585.60	584.65	580.35	578.70	578.45	581.50	584.40	580.90	578.90	579.75	582.85
13	582.00	585.50	584.40	580.35	578.60	578.50	581.60	584.40	580.80	578.80	579.80	582.80
14	582.30	585.40	584.20	580.25	578.75	578.35	581.95	584.25	580.65	578.80	579.90	582.70
15	582.55	585.40	584.15	580.20	578.70	578.40	581.95	584.25	580.70	578.85	580.00	583.05
16	582.65	585.20	583.90	580.10	578.65	578.30	582.20	584.25	580.50	578.80	580.10	583.00
17	582.70	585.15	583.80	580.05	578.60	578.25	582.25	584.15	580.40	578.80	580.30	582.90
18	583.00	584.95	583.70	579.90	578.60	578.45	582.25	584.10	580.30	578.80	580.40	583.05
19	583.25	585.00	583.50	579.70	578.60	578.30	582.40	583.85	580.25	578.90	580.60	583.00
20	583.40	584.85	583.35	579.55	578.35	578.15	582.75	583.60	580.30	578.85	580.80	583.00
21	583.55	584.80	583.20	579.45	578.20	578.30	582.80	583.40	580.15	578.90	580.95	583.10
22	583.70	.....	583.00	579.55	578.25	578.20	582.85	583.35	580.00	578.90	581.05	583.15
23	583.90	584.70	582.95	579.50	578.25	578.10	582.20	583.10	579.90	578.80	581.10	583.10
24	.....	584.60	582.85	579.30	578.20	578.15	582.10	583.00	580.00	578.80	581.30	583.10
25	584.35	584.70	582.55	579.25	578.30	578.20	582.30	582.90	579.85	578.90	581.40	583.05
26	584.50	584.80	582.30	579.30	578.30	578.20	582.35	582.80	579.70	578.85	581.60	583.10
27	584.80	584.85	582.25	579.25	578.25	578.20	582.55	582.60	579.70	579.00	581.80	583.15
28	584.95	584.80	582.20	579.15	578.30	578.30	582.70	582.50	579.70	579.10	581.80	583.25
29	585.05	.....	582.00	579.00	578.45	578.30	582.75	582.40	579.55	578.95	.....	583.15
30	585.40	584.65	581.80	579.05	578.40	578.35	582.60	582.30	579.65	579.00	.....	583.25
31	.....	584.80	.....	579.00	578.45	.....	582.80	.....	579.35	579.00	.....	583.20

ELEVATIONS of Ottawa River below Timiskaming Dam during the year 1910–11

TABLE No. 5.

Day of month	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	.....	570.60	.....	576.10	.....	571.45	571.10	570.45	573.30	575.50	.....	569.95	568.45
2	569.40	570.75	576.55	576.35	573.40	571.50	571.00	.....	573.25	575.00	571.30	569.90	568.50
3	569.55	570.90	576.70	576.25	.....	571.45	571.05	570.55	573.40	574.60	571.30	569.80	568.55
4	569.55	570.95	576.60	576.15	573.10	571.40	.....	570.65	573.50	574.60	571.20	569.75	568.60
5	.....	571.45	576.60	.....	573.00	571.35	571.10	570.80	573.55	574.10	571.20	.....	568.65
6	.....	571.90	576.60	576.10	572.85	571.30	571.15	571.10	.....	573.70	571.15	569.60	568.70
7	569.60	571.95	576.60	576.20	572.80	.....	571.05	571.20	573.50	573.20	571.10	569.50	.....
8	569.45	572.60	576.55	576.15	572.60	571.30	570.90	571.30	573.55	572.80	571.00	569.45	.....
9	569.40	572.75	576.60	576.10	572.70	571.25	571.00	.....	573.60	572.50	571.00	569.35	.....
10	569.40	573.20	576.80	576.00	572.65	571.30	570.90	571.60	573.50	572.40	570.85	569.25	569.05
11	569.40	573.50	576.70	575.90	572.60	571.30	.....	571.85	573.55	.....	570.85	569.20	569.00
12	.....	573.75	576.50	.....	572.50	571.30	570.95	572.00	573.60	572.30	570.90	.....	569.10
13	.....	573.80	576.50	575.70	572.50	571.35	570.90	572.10	573.60	572.20	570.80	569.05	569.05
14	569.45	574.00	576.50	575.50	572.40	.....	570.80	572.25	573.70	572.20	570.80	569.00	569.05
15	.....	574.15	.....	573.30	572.30	571.35	570.80	572.20	573.70	572.20	.....	568.80	569.15
16	569.40	574.20	576.40	575.10	572.25	571.25	570.75	572.50	573.65	572.15	570.70	568.60	569.20
17	569.35	574.30	576.35	575.00	.....	571.15	570.80	572.50	573.65	572.15	570.60	568.55	569.25
18	569.25	574.50	576.20	574.90	572.15	571.20	.....	572.60	573.55	.....	570.60	568.45	569.30
19	569.25	574.70	576.10	574.70	572.00	571.10	570.65	572.60	574.70	572.10	570.55	.....	569.30
20	.....	574.85	576.00	574.70	571.85	571.00	570.70	572.55	.....	572.00	570.50	568.25	569.30
21	569.20	574.90	576.00	574.50	571.75	.....	570.75	572.60	575.80	571.95	570.55	568.15	569.30
22	569.35	575.10	576.00	574.40	571.80	570.90	570.60	572.60	576.50	571.90	570.60	.....	569.35
23	569.30	575.15	575.90	574.35	571.75	570.80	570.50	572.85	576.50	571.85	570.70	.....	569.35
24	569.35	.....	575.85	574.30	.....	570.70	570.45	.....	576.50	571.80	570.60	.....	569.30
25	569.45	575.50	575.90	574.00	571.80	570.65	570.45	.....	576.40	.....	570.50	.....	569.30
26	569.55	575.65	576.00	573.90	571.85	570.65	570.50	572.95	576.30	571.70	570.45	568.20	569.35
27	.....	575.90	576.00	573.85	571.80	570.70	570.30	573.10	.....	571.60	570.30	568.35	569.35
28	569.65	576.10	575.95	573.85	571.75	.....	.....	573.15	576.10	571.60	570.20	568.40	569.40
29	569.90	576.20	575.90	573.75	571.55	570.80	570.40	573.25	576.00	571.50	.....	.....	569.40
30	570.05	576.40	576.00	573.55	571.50	570.90	570.45	.....	575.90	571.45	570.05	.....	569.45
31	.....	.....	.....	.....	.....	571.00	.....	573.30	.....	571.30	570.00	.....	569.45

ELEVATIONS of Kipawa Lake at Kipawa, Que., during the year 1910-11

TABLE No. 6.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec	Jan.	Feb.	Mar.
1	877.25	881.10	880.40	881.70	880.70	880.25	880.15	880.80	880.10	879.50	877.95	875.95
2	877.35	881.20	880.40	881.70	880.70	880.25	880.20	880.80	880.00	879.45	879.90	875.80
3	877.50	881.25	880.45	881.70	880.60	880.25	880.20	880.80	880.00	879.35	877.85	875.70
4	877.50	881.30	880.50	881.70	880.60	880.25	880.25	880.80	880.00	879.30	877.80	875.55
5	877.70	881.30	880.50	881.60	880.60	880.25	880.20	880.80	879.95	879.30	877.75	875.50
6	877.80	881.30	879.50	881.60	880.55	880.30	880.40	880.75	879.90	879.30	877.70	875.30
7	878.00	881.20	880.60	881.60	880.55	880.30	880.40	880.75	879.85	879.30	877.60	875.20
8	878.10	881.15	880.60	881.60	880.50	880.25	880.35	880.75	879.85	879.30	877.50	875.10
9	878.20	881.10	880.60	881.55	880.45	880.30	880.40	880.75	879.85	879.30	877.45	875.00
10	878.40	881.10	880.60	881.50	880.45	880.25	880.45	880.75	879.80	879.30	877.40	875.00
11	878.50	881.00	880.65	881.50	880.40	880.20	880.50	880.75	879.80	879.25	877.35	874.80
12	878.65	881.00	880.80	881.50	880.35	880.25	880.50	880.75	879.80	879.20	.....	874.80
13	878.80	881.00	881.00	881.50	880.35	880.25	880.50	880.75	879.75	879.20	.....	874.70
14	878.90	880.85	881.05	881.40	880.30	880.25	880.55	880.75	879.75	879.10	.....	874.60
15	879.05	880.80	881.05	881.40	880.20	880.20	880.50	880.70	879.70	879.00	.....	874.50
16	879.20	980.70	881.10	881.40	880.15	880.20	880.55	880.70	879.70	878.95	.....	874.40
17	879.40	880.60	881.20	881.30	880.15	880.20	880.60	880.60	879.70	878.85	.....	874.30
18	879.50	880.80	881.30	881.30	880.15	880.20	880.65	880.55	879.70	878.80	.....	874.30
19	879.65	880.60	881.40	881.20	880.15	880.20	880.65	880.50	879.70	878.70	876.80	874.25
20	879.70	880.45	881.40	881.10	880.15	880.20	880.65	880.45	879.65	878.70	876.75	874.20
21	879.90	880.40	881.45	881.10	880.15	880.20	880.70	880.40	879.60	878.70	876.70	874.20
22	880.00	880.30	881.50	881.10	880.10	880.15	880.70	880.35	879.60	788.60	876.60	874.20
23	880.10	880.30	881.60	881.10	880.10	880.15	880.75	880.25	879.55	878.45	876.50	874.15
24	880.30	880.30	881.60	881.00	880.10	880.15	880.75	880.25	879.55	878.40	876.50	874.10
25	880.40	880.30	881.60	881.00	880.25	880.15	880.80	880.20	879.55	878.30	876.40	874.05
26	880.50	880.30	881.60	881.00	880.30	880.15	880.85	880.20	879.55	878.25	876.30	874.00
27	880.70	880.30	881.70	881.00	880.25	880.25	880.85	880.10	879.50	878.25	876.20	873.95
28	880.80	880.30	881.70	880.90	880.30	880.20	880.85	880.10	879.50	878.20	876.05	873.95
29	880.90	880.20	881.70	880.80	880.30	880.20	880.80	880.10	879.50	878.10	.....	873.90
30	881.00	880.30	881.70	880.90	880.30	880.15	880.80	880.10	879.45	878.00	.....	873.90
31	.....	880.30	.....	880.80	880.30	.....	880.80	.....	879.40	878.00	.....	873.85

ELEVATIONS of Gordon Creek at Lumsden's Mills, Que., during the year 1910-11.

TABLE No. 7.

Day of the Month	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1			773.45	773.55	772.95	772.45	772.25	772.85	772.25	771.95	772.45	771.75
2			772.55	773.65	773.05	772.15	772.05	772.85	772.25	771.85	772.05	771.75
3		773.30	772.45	773.45	773.05	772.05	772.15	772.75	771.95	771.85	772.15	771.75
4	772.65		772.65	773.25	772.95	772.15	771.85	772.85	771.85	771.85	772.15	771.75
5			773.05	773.45	772.85	772.45	771.35	772.95	771.85	771.95	772.05	771.60
6			773.45	772.45	772.85	772.45	771.35	772.85	771.85	771.95	772.15	771.65
7	772.65		773.35	772.65	772.80	772.15	772.45	772.95	771.75	771.95	772.15	771.65
8		772.85	772.95	773.15	772.85	772.05	772.15	772.95	771.85	771.85	772.45	771.55
9	772.55		772.55	773.35	772.95	772.15	772.05	773.05	771.85	771.85	772.15	771.75
10			772.45	773.15	772.95	772.05	771.95	773.15	771.75	772.05	772.05	771.45
11			773.45	773.25	772.85	772.05	772.45	773.25	771.85	771.95	772.15	771.45
12			772.45	773.45	773.05	771.95	772.55	773.35	771.75	771.95	772.05	771.45
13		772.90	773.35	773.55	772.85	772.45	772.15	773.25	771.75	772.25	772.05	771.45
14		772.85	773.35	773.65	772.75	772.25	771.95	773.15	771.75	772.25	772.05	771.45
15	772.85	773.25	773.45	773.65	772.95	772.55	771.85	773.35	771.75	772.25	772.05	771.45
16		772.75	773.15	773.45	772.45	772.45	771.75	773.25	771.75	772.35	771.95	771.45
17		773.25	773.25	773.45	772.65	772.65	771.65	773.25	771.75	772.35	772.05	771.35
18		772.45	772.45	773.55	772.75	772.15	771.65	773.15	771.75	772.35	771.95	771.35
19		773.05	772.45	773.65	772.85	772.45	771.75	773.25	771.65	772.25	771.95	771.55
20	772.95	773.25	773.45	773.35	772.55	772.15	771.65	773.15	771.65	772.15	771.95	771.55
21		773.05	773.45	773.45	771.95	772.05	771.55	773.25	771.65	772.15	772.05	771.65
22			773.05	773.35	772.65	772.15	771.65	773.35	771.75	772.05	771.95	771.35
23		773.05	773.45	773.25	772.55	772.05	771.75	773.15	771.75	772.05	771.95	771.35
24		773.15	773.35	773.15	772.45	772.15	771.75	773.25	771.85	772.15	771.95	771.25
25		772.65	772.95		772.15	771.95	771.65	773.25	771.85	772.25	771.95	771.25
26		773.25	772.65	773.05	772.05	772.15	772.35	773.35	771.75	772.15	771.85	771.25
27		772.75	772.95	773.15	772.45	772.15	772.45	773.25	771.75	772.15	771.95	771.25
28	773.20	772.95	773.05	772.95	772.15	772.25	772.45	773.35	771.85	772.35	771.90	771.25
29		772.45	773.25	773.05	772.35	772.05	772.55	772.95	771.95	772.25		771.25
30		772.95	773.65	772.95	772.15	772.15	772.85	772.45	771.95	772.25		771.25
31		773.15		773.05	772.45		772.75		771.95	772.05		771.20

ELEVATIONS of Ottawa River at Mattawa, Ont., during the year 1910-11.

TABLE No. 8.

Day of the month	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	493.80	499.30	499.45		494.60	494.30	493.65	496.15	496.10	494.35	493.20	
2	493.80	499.35	499.40		494.55	494.30	493.65	496.20	496.00	494.30	493.20	
3	494.00	490.35	499.35		494.55	494.30	493.75	496.25	495.75	494.25	493.15	
4	494.70	499.40	499.30		494.55	494.30	494.35	496.30	495.70	494.15	493.05	
5	495.40	499.50	499.25		494.55	494.30	494.05	496.35	495.60	494.15	493.05	492.25
6	495.80	499.50	499.25		494.55	494.40	494.20	496.40	495.50	494.10	493.05	492.35
7	496.10	499.55	499.25		494.55	494.35	494.35	496.45	495.45	494.05	493.05	492.35
8	496.40	499.55	499.15		494.55	494.30	494.45	496.45	495.40	494.05	492.95	492.85
9	496.60	499.65	499.05		494.50	494.25	494.60	496.50	495.35	494.05	492.95	492.35
10	496.80	499.60	498.85	495.65	494.50	494.25	494.70	496.55		493.95	492.95	492.35
11	496.95	499.60	498.75	495.60	494.50	494.15	494.85	496.55	495.30	493.90	492.95	492.45
12	497.10	499.50	498.65	495.55	494.50	494.15	494.85	496.60	495.25	493.85		492.55
13	497.20	499.40	498.55	495.50	494.50	494.15	495.05	496.55	495.15	493.85		492.55
14	497.30	499.30	498.35	495.45	494.45	494.10	495.15	496.55	495.10	493.80		492.55
15	497.40	499.20	498.35	495.40	494.45	494.10	495.20	496.50	595.05	493.75		492.65
16	497.50	499.05	498.05	495.35	494.40	494.50	495.25	496.45	495.00	493.75		492.65
17	497.60	498.90	498.00	495.25	494.35	494.50	495.30	496.50	494.95	493.65		492.75
18	497.70	498.80	497.80	495.20	494.30	494.50	495.35	496.60	495.35	493.60		492.75
19	497.80	498.75	497.70	495.10	494.25	494.50	495.40	496.75	495.35	493.55		492.75
20	497.90	498.70	497.60	495.00	494.20	494.50	495.45	497.00	494.85	493.55		492.75
21	498.00	498.65	497.50	494.95		494.10	495.50	496.95	494.85	493.55		492.75
22	498.00	498.65	497.45	494.90		494.10	495.55	496.85	494.75	493.55		492.65
23	498.10	498.70	497.40	494.90		493.90	495.60	496.75	494.65	493.45		492.65
24	498.20	498.75	497.30	494.90		493.85	495.65	496.65	494.70	493.40		492.65
25	498.30	498.80	497.10	494.85		493.80	495.70	496.65	494.65	493.40		492.65
26	498.50	498.85		494.80		493.80	495.75	496.55	494.55	493.40		492.75
27	498.70	498.90		494.75		493.80	495.85	496.45	494.50	493.35		492.75
28	498.90	498.95		494.70	494.50	493.80	495.95	496.35	494.45	493.35		492.75
29	499.10	499.05		494.65	494.45	493.80	496.05	496.25	494.45	493.30		492.75
30	499.25	499.15		494.65	494.40	493.80	496.05	496.20	494.45	493.30		492.75
31		499.35		494.65	494.35		496.10		494.35	493.25		492.75

ELEVATIONS of Lake Nipissing at North Bay, during the year 1910-11.

TABLE No. 9.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	639.80	641.60	641.90	642.00	640.80	640.20	640.00	639.50	639.40	638.50	638.50	638.10
2	639.90	641.60	642.00	641.90	640.80	640.20	639.40	639.90	639.40	638.50	638.40	638.00
3	640.00	641.60	642.00	642.00	640.80	640.20	639.40	639.60	639.40	638.50	638.40	638.00
4	640.10	641.70	642.10	641.90	641.00	640.20	639.50	639.60	639.40	638.50	638.40	638.00
5	640.20	641.70	642.10	641.90	640.90	640.10	639.60	639.60	639.40	638.50	638.40	638.00
6	640.20	641.70	642.10	641.80	640.80	640.10	639.60	639.60	639.40	638.50	638.40	638.00
7	640.30	641.80	642.10	641.80	640.70	640.10	639.60	639.60	639.40	638.50	638.40	637.90
8	640.40	641.80	642.20	641.80	640.70	640.20	639.60	639.60	639.40	638.50	638.40	637.90
9	640.60	641.80	642.20	641.70	640.70	640.10	639.60	639.60	639.40	638.50	638.30	637.90
10	640.60	641.80	642.20	641.70	640.70	640.00	639.70	639.60	639.40	638.50	638.30	637.90
11	640.70	641.80	642.30	641.70	640.60	640.00	639.70	639.60	639.40	638.50	638.30	637.90
12	640.70	641.70	642.30	641.70	640.60	640.00	639.60	639.60	639.40	638.50	638.30	637.90
13	640.80	641.60	642.30	641.60	640.50	639.90	639.60	639.60	639.40	638.50	638.20	637.90
14	640.80	641.60	642.30	641.60	640.50	639.90	639.50	639.60	639.40	638.50	638.20	637.90
15	640.80	641.60	642.30	641.50	640.40	639.90	639.50	639.60	639.40	638.50	638.20	637.90
16	640.90	641.60	642.30	641.50	640.40	639.90	639.50	639.60	639.40	638.50	638.20	637.90
17	640.90	641.60	642.30	641.40	640.50	639.80	639.50	639.60	639.40	638.50	638.20	637.90
18	641.00	642.20	642.30	641.40	640.40	639.80	639.50	639.60	639.40	638.50	638.20	637.90
19	641.00	641.60	642.30	641.40	640.40	639.70	639.50	639.60	639.40	638.50	638.20	637.90
20	641.00	641.60	642.30	641.50	640.40	639.70	639.40	639.50	639.40	638.50	638.20	637.80
21	641.10	641.60	642.30	641.40	640.40	639.70	639.40	639.50	639.40	638.50	638.20	637.80
22	641.10	641.60	642.30	641.30	640.30	639.60	639.80	639.50	639.40	638.50	638.20	637.80
23	641.10	641.60	642.20	641.20	640.30	639.50	639.50	639.40	639.40	638.50	638.10	637.80
24	641.20	641.70	642.20	641.20	640.30	639.40	639.60	639.50	639.40	638.50	638.10	637.80
25	641.20	641.70	642.20	641.30	640.30	639.50	639.60	639.50	639.40	638.50	638.10	637.80
26	641.30	641.70	642.10	641.10	640.50	639.50	639.50	639.50	639.40	638.50	638.10	637.70
27	641.40	641.80	642.10	641.00	640.60	639.50	639.50	639.40	639.40	638.50	638.10	637.70
28	641.50	641.80	642.10	641.00	640.30	639.50	639.50	639.40	639.40	638.50	638.10	637.70
29	641.50	642.20	642.10	641.00	640.30	639.50	639.50	639.40	639.40	638.50	.....	637.70
30	641.60	641.80	642.00	641.00	640.30	639.50	639.30	639.40	639.40	638.50	.....	637.80
31	.....	641.80	....	640.90	640.30	.....	639.50	.....	639.40	638.50	.....	.....

ELEVATIONS of Ottawa River at Klock's Station, during the year 1910-11.

TABLE No. 10.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	477.60	486.80	486.30	482.15	479.35	478.95	478.10	481.65	481.65	478.95	479.95	477.85
2	477.60	486.90	486.50	481.95	479.30	478.90	478.25	481.75	481.55	478.95	479.85	477.85
3	477.65	487.00	486.70	481.85	479.25	478.90	478.30	481.85	481.45	478.85	479.85	477.85
4	477.70	487.10	486.80	481.85	479.25	478.85	478.35	481.95	481.35	478.85	479.85	477.95
5	577.75	486.90	486.70	481.55	479.20	478.90	478.55	481.95	481.15	478.95	479.90	477.95
6	477.85	486.90	486.60	481.35	479.15	478.95	478.85	482.05	480.95	479.15	479.95	477.95
7	478.00	487.00	486.50	481.15	479.15	478.85	479.15	482.15	480.75	479.45	479.95	477.95
8	.....	487.00	486.30	480.95	479.20	478.85	479.45	482.15	480.65	479.65	479.95	478.00
9	.....	487.00	486.20	480.85	479.15	478.75	479.55	482.15	480.55	479.55	480.15	477.95
10	.....	487.00	486.15	480.75	479.15	478.65	479.75	482.25	480.45	479.45	480.25	478.05
11	.....	487.10	486.10	480.75	479.20	478.65	479.95	482.25	480.35	479.25	480.35	478.05
12	482.50	487.10	485.80	.....	479.05	478.65	480.15	482.35	480.35	479.05	.....	477.75
13	482.70	487.10	485.40	.....	479.05	478.65	480.25	482.55	480.25	478.85	.....	477.65
14	482.80	486.90	485.20	480.35	479.00	478.55	480.35	482.65	480.15	478.75	.....	477.45
15	483.00	486.80	485.10	479.90	479.10	478.55	480.45	482.75	480.10	478.75	.....	477.35
16	483.05	486.50	484.90	479.75	479.05	478.55	480.55	482.85	479.85	478.85	.....	477.25
17	483.15	486.50	484.80	479.75	479.05	478.45	480.65	482.90	479.75	479.05	.....	477.25
18	483.30	486.40	484.80	479.75	479.05	478.45	480.65	483.05	479.65	479.15	.....	477.25
19	483.60	486.20	484.80	479.75	479.05	478.45	480.55	483.15	479.60	479.45	.....	477.25
20	483.70	486.10	484.80	479.75	479.10	478.35	480.55	483.25	479.55	479.65	.....	477.20
21	483.90	486.10	484.80	479.70	478.75	478.35	480.60	483.25	479.45	479.95	.....	476.95
22	484.50	486.10	484.80	479.65	478.75	478.25	480.65	483.25	479.35	480.05	.....	476.95
23	484.70	486.00	484.65	479.65	478.85	478.15	480.85	483.05	479.25	480.15	.....	476.90
24	485.00	486.00	484.25	479.65	479.00	478.05	480.95	482.85	479.15	480.25	.....	476.85
25	485.20	486.00	484.05	479.55	479.15	478.05	481.15	482.75	479.15	480.05	477.85	476.85
26	485.40	486.00	483.65	479.55	479.25	478.05	481.35	482.55	479.10	479.95	477.90	476.85
27	485.70	486.00	483.45	479.55	479.25	478.05	481.35	482.45	479.05	479.95	477.80	476.85
28	486.50	.....	483.05	479.45	479.25	478.05	481.40	482.25	479.05	479.85	477.85	476.85
29	486.60	486.00	482.75	479.45	479.15	478.05	481.45	482.05	479.00	479.95	.....	476.85
30	486.70	486.00	482.45	479.40	479.15	478.05	481.45	481.85	478.95	480.05	.....	476.85
31	.....	486.10	.....	479.35	479.15	.....	481.55	.....	478.95	480.05	.....	476.85

ELEVATIONS of Petawawa River at Petawawa, Ont., during the year 1910-11.

TABLE No. 11.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	440.35	440.15	440.85	439.85	438.50	438.50	437.40	437.40	437.60	437.50	437.30	437.40
2	440.35	440.25	440.85	439.85	438.50	438.30	437.40	437.40	437.70	437.50	437.30	437.40
3	440.25	440.25	440.75	439.75	438.40	438.30	437.50	437.50	437.60	437.40	437.40	437.40
4	440.25	440.25	440.75	439.65	438.50	438.40	437.50	437.40	437.60	437.40	437.30	437.30
5	440.35	440.25	440.95	439.65	438.40	438.30	437.50	437.40	437.50	437.40	437.30	437.30
6	440.35	440.15	440.85	439.65	438.40	438.20	437.50	437.40	437.50	437.40	437.30	437.30
7	440.45	440.15	440.85	439.55	438.30	438.20	437.50	437.40	437.40	437.40	437.30	437.30
8	440.35	440.15	440.85	439.55	438.30	438.00	437.50	437.40	437.40	437.40	437.40	437.20
9	440.35	440.05	440.45	439.45	438.30	437.90	437.50	437.50	437.50	437.50	437.40	437.30
10	440.25	440.05	440.45	439.35	438.30	437.90	437.50	437.50	437.40	437.50	437.40	437.20
11	440.25	440.05	440.45	439.35	438.20	437.80	437.50	437.40	437.40	437.60	437.40	437.20
12	440.15	439.95	440.85	439.35	438.20	437.80	437.50	437.50	437.40	437.60	437.40	437.20
13	440.25	439.95	440.85	439.15	438.10	437.60	437.50	437.50	437.50	437.70	437.30	437.20
14	440.35	440.05	440.85	439.15	438.20	437.60	437.50	437.50	437.50	437.60	437.30	437.30
15	440.35	440.05	440.85	439.15	438.20	437.50	437.50	437.50	437.50	437.60	437.30	437.30
16	440.25	439.95	440.85	439.15	438.10	437.50	437.50	437.60	437.50	437.50	437.30	437.20
17	440.25	439.85	440.75	439.05	438.10	437.50	437.50	437.60	437.50	437.50	437.30	437.30
18	440.25	439.85	440.25	439.05	438.20	437.40	437.60	437.70	437.60	437.40	437.30	437.30
19	440.35	439.75	440.45	439.15	438.30	437.50	437.60	437.60	437.60	437.50	437.30	437.30
20	440.35	439.85	440.65	439.05	438.40	437.40	437.50	437.60	437.60	437.50	437.30	437.30
21	440.15	439.75	440.75	439.15	438.50	437.30	437.50	437.60	437.60	437.50	437.30	437.40
22	440.15	439.65	440.65	438.95	438.70	437.30	437.50	437.60	437.70	437.50	437.30	437.30
23	440.25	439.65	440.65	438.85	438.70	437.30	437.50	437.60	437.70	437.50	437.40	437.40
24	440.15	439.65	440.65	438.65	438.60	437.40	437.50	437.60	437.60	437.50	437.40	437.40
25	440.15	439.75	440.55	438.65	438.60	437.30	437.40	437.70	437.60	437.60	437.40	437.40
26	440.15	439.85	440.50	438.55	438.60	437.30	437.50	437.70	437.50	437.70	437.40	437.40
27	440.15	440.25	440.35	438.55	438.60	437.30	437.40	437.60	437.50	437.60	437.40	437.50
28	440.15	440.45	440.15	438.45	438.60	437.30	437.40	437.50	437.50	437.50	437.50	437.50
29	440.15	440.85	440.15	438.45	438.50	437.40	437.40	437.50	437.50	437.50	437.50	437.60
30	440.15	440.85	440.05	438.45	438.50	437.30	437.40	437.60	437.50	437.40	437.50	437.70
31	.....	440.75	.....	438.45	438.50	.....	437.40	.....	437.50	437.40	.....	437.70

ELEVATIONS of Black River at Waltham, Que., during the year 1910-11.

TABLE No. 12.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	.....	.....	.....	.....	2.30	3.35	3.00	2.85	3.15	2.75	2.65	2.70
2	.....	.....	.....	.....	2.30	3.40	3.00	2.85	3.15	2.75	2.65	2.70
3	.....	.....	.....	.....	2.20	3.50	3.15	2.85	3.15	2.75	2.60	2.70
4	.....	.....	.....	.....	2.15	3.50	3.20	2.90	3.10	2.75	2.60	2.70
5	.....	.....	.....	.....	2.15	3.50	3.20	2.95	3.00	2.70	2.65	2.70
6	.....	.....	.....	.....	2.15	3.45	3.25	2.95	3.00	2.70	2.65	2.70
7	.....	.....	.....	.....	2.15	3.45	3.35	3.00	3.00	2.70	2.65	2.75
8	.....	.....	.....	.....	2.15	3.30	3.55	3.00	2.95	2.70	2.65	2.70
9	.....	.....	.....	.....	2.10	3.30	3.55	2.95	2.95	2.70	2.65	2.70
10	.....	.....	.....	.....	2.00	3.30	3.55	2.95	2.95	2.70	2.65	2.75
11	.....	.....	.....	.....	2.00	2.85	3.50	2.95	2.95	2.65	2.65	2.75
12	.....	.....	.....	.....	2.00	2.85	3.50	2.95	2.95	2.65	2.65	2.75
13	.....	.....	.....	.....	2.00	2.85	3.40	2.90	2.95	2.65	2.65	2.75
14	.....	.....	.....	3.45	2.00	2.85	3.40	2.90	2.90	2.65	2.70	2.70
15	.....	.....	.....	2.80	2.10	2.85	3.35	2.85	2.90	2.65	2.70	2.70
16	.....	.....	.....	2.80	2.20	2.80	3.25	2.85	2.90	2.65	2.65	2.70
17	.....	.....	.....	2.75	2.20	2.80	3.25	2.85	2.85	2.65	2.65	2.75
18	.....	.....	.....	2.65	2.50	2.80	3.25	2.90	2.85	2.65	2.65	2.75
19	.....	.....	.....	2.60	2.50	2.80	3.25	2.90	2.85	2.65	2.65	2.75
20	.....	.....	.....	2.60	2.50	2.70	3.20	2.95	2.85	2.65	2.65	2.75
21	.....	.....	.....	2.60	2.30	2.70	3.00	2.95	2.85	2.65	2.65	2.75
22	.....	.....	.....	2.60	2.30	2.65	2.95	2.95	2.85	2.65	2.65	2.75
23	.....	.....	.....	2.50	2.30	2.65	2.95	2.95	2.85	2.65	2.65	2.75
24	.....	.....	.....	2.45	2.35	2.65	2.90	3.00	2.80	2.65	2.65	2.75
25	.....	.....	.....	2.40	2.35	2.65	2.85	3.00	2.80	2.70	2.70	2.75
26	.....	.....	.....	2.40	2.35	2.70	2.85	3.00	2.80	2.70	2.70	2.75
27	.....	.....	.....	2.40	2.35	2.75	2.85	3.10	2.80	2.70	2.70	2.75
28	.....	.....	.....	2.35	2.40	2.75	2.85	3.10	2.75	2.70	2.70	2.75
29	.....	.....	.....	2.35	3.00	2.75	2.80	3.20	2.75	.....	.....	2.75
30	.....	.....	.....	2.30	3.30	2.80	2.80	3.20	2.75	.....	.....	2.75
31	.....	.....	.....	2.30	3.35	.....	2.80	.....	2.75	.....	.....	2.75

ELEVATIONS of Coulonge River at High Falls, Que., during the year 1910-11.

TABLE No. 13.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	.....	.....	.....	.....	3.90	3.55	4.20	4.80	4.55	4.05	3.85	3.85
2	.....	.....	.....	.....	3.90	3.55	4.25	4.75	4.50	4.00	3.80	3.90
3	.....	.....	.....	.....	3.95	3.60	4.25	4.70	4.45	4.00	3.75	3.90
4	.....	.....	.....	.....	3.90	3.65	4.30	4.70	4.45	3.95	3.70	3.90
5	.....	.....	.....	.....	3.80	3.70	4.30	4.65	4.40	3.90	4.00	3.90
6	.....	.....	.....	.....	3.80	3.60	4.30	4.70	4.40	3.90	4.00	3.90
7	.....	.....	.....	.....	3.80	3.60	4.35	4.75	4.45	3.90	4.00	3.90
8	.....	.....	.....	.....	3.75	3.55	4.40	4.80	4.50	3.90	4.00	3.90
9	.....	.....	.....	.....	3.80	3.50	4.45	4.80	4.50	3.85	4.00	3.90
10	.....	.....	.....	.....	3.70	3.50	4.50	4.75	4.50	3.85	4.05	3.90
11	.....	.....	.....	.....	3.70	3.50	4.55	4.70	4.50	3.80	4.05	3.90
12	.....	.....	.....	.....	3.70	3.50	4.60	4.65	4.55	3.80	4.00	3.85
13	.....	.....	.....	.....	3.60	3.45	4.70	4.65	4.60	3.75	3.95	3.85
14	.....	.....	.....	.....	3.80	3.45	4.75	4.60	4.60	3.75	3.90	3.80
15	.....	.....	.....	.....	3.90	3.40	4.85	4.65	4.55	3.70	3.90	3.80
16	.....	.....	.....	.....	3.90	3.40	4.90	4.65	4.50	3.70	3.80	3.80
17	.....	.....	.....	.....	4.00	3.35	4.90	4.65	4.45	3.75	3.80	3.75
18	.....	.....	.....	.....	4.10	3.65	4.85	4.55	4.40	3.80	3.80	3.70
19	.....	.....	.....	.....	4.10	3.70	4.85	4.55	4.40	3.85	3.80	3.70
20	.....	.....	.....	.....	4.00	3.70	4.85	4.55	4.45	3.90	3.80	3.70
21	.....	.....	.....	.....	3.90	3.80	4.85	4.55	4.45	3.90	3.80	3.75
22	.....	.....	.....	.....	3.85	3.90	4.80	4.60	4.50	3.95	3.80	3.80
23	.....	.....	.....	.....	3.70	3.95	4.85	4.60	4.55	3.90	3.85	3.80
24	.....	.....	.....	.....	3.70	4.00	4.80	4.65	4.60	3.85	3.80	3.85
25	.....	.....	.....	.....	3.70	4.10	4.80	4.60	4.50	3.85	3.85	3.85
26	.....	.....	.....	.....	3.65	4.10	4.85	4.60	4.35	3.80	3.90	3.90
27	.....	.....	.....	.....	3.65	4.20	4.80	4.60	4.30	3.75	3.85	3.90
28	.....	.....	.....	.....	3.60	4.20	4.80	4.60	4.20	3.70	3.85	3.85
29	.....	.....	.....	.....	3.60	4.25	4.80	4.60	4.20	3.85	.....	3.85
30	.....	.....	.....	.....	3.50	4.20	4.80	4.55	4.10	3.85	.....	3.80
31	.....	.....	.....	.....	3.50	.....	4.80	.....	4.00	3.90	.....	3.80

ELEVATIONS of the Bonnechere River at Renfrew, Ont., during the year 1910-11.

TABLE No. 14.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	325.30	325.10	324.60	324.00	323.30	322.90	322.00	323.00	323.10	323.00	322.60	322.80
2	325.30	325.10	324.50	324.00	323.30	323.10	321.90	323.00	323.10	323.00	322.60	322.80
3	325.20	325.40	324.50	323.90	323.30	323.10	321.80	323.00	323.10	323.00	322.70	322.80
4	325.10	325.30	.....	323.90	323.40	323.10	321.90	323.00	323.20	323.00	322.70	322.80
5	325.10	325.20	324.50	323.90	323.40	323.10	322.00	323.00	323.20	323.00	323.10	323.00
6	325.00	325.20	324.50	323.90	323.30	323.00	322.00	323.00	323.20	323.00	322.60	322.70
7	325.00	325.10	324.40	323.90	323.30	323.00	321.90	323.00	323.20	323.00	322.70	322.60
8	325.00	325.10	324.40	323.80	323.30	323.00	321.90	323.00	323.20	322.90	322.80	322.60
9	325.10	325.00	324.40	323.90	323.40	322.90	322.40	323.00	323.20	322.80	322.90	322.40
10	325.10	325.00	324.40	323.90	323.40	322.90	322.70	323.10	323.20	322.80	322.80	322.40
11	325.10	325.00	324.40	323.90	323.30	322.80	323.10	323.10	323.20	322.90	322.80	322.40
12	325.20	324.90	324.40	323.90	323.20	322.80	323.10	323.10	323.10	322.90	323.10	322.90
13	325.20	324.80	324.40	323.70	323.20	322.90	323.00	323.10	323.10	322.90	322.70	322.80
14	325.10	324.80	324.30	323.70	323.20	322.90	323.00	323.10	323.10	322.90	322.60	322.70
15	325.10	324.80	324.30	323.70	321.40	322.90	322.90	323.10	323.00	322.80	322.70	322.90
16	325.10	324.70	324.30	323.70	321.90	322.90	322.90	323.10	323.00	322.70	322.90	322.60
17	325.10	324.70	324.20	323.60	323.00	322.90	322.80	323.10	323.00	322.70	322.90	322.80
18	325.10	324.70	324.20	323.60	323.30	322.80	322.90	323.10	323.00	322.70	322.80	322.60
19	325.00	324.60	324.20	323.60	323.30	323.10	322.90	323.10	323.00	322.70	323.00	322.40
20	325.20	324.60	324.20	323.50	323.30	323.10	322.90	323.10	323.00	322.70	322.60	322.60
21	325.20	324.60	324.20	323.50	323.30	323.00	322.90	323.20	323.00	322.80	322.70	323.00
22	325.10	234.60	324.20	323.50	323.30	323.00	322.90	323.20	323.00	322.70	322.70	322.80
23	.....	324.60	324.20	323.50	323.30	322.85	322.90	323.20	323.00	322.70	322.70	322.90
24	325.20	324.60	324.10	323.50	323.30	322.70	323.00	323.10	323.00	322.50	322.70	322.60
25	325.20	324.60	324.10	323.50	323.20	322.60	323.00	323.10	322.80	322.60	322.70	322.80
26	325.20	324.60	324.10	323.50	323.20	322.60	323.00	323.10	322.80	322.70	323.10	322.60
27	325.30	324.60	324.10	323.50	323.20	322.50	323.00	323.10	322.80	322.60	322.70	322.50
28	325.30	324.60	324.00	323.50	323.10	322.40	323.90	323.10	322.90	322.40	322.70	.....
29	325.30	324.60	324.00	323.40	322.40	322.30	323.90	323.10	323.00	323.10	.....	.....
30	325.20	324.60	324.00	323.40	321.40	322.10	323.90	323.10	323.00	322.40	.....	322.60
31	.....	324.60	.....	323.30	321.80	.....	323.90	.....	323.00	322.50	.....	322.70

ELEVATIONS of Calabogie Lake at Calabogie, Ont., during the year 1910-11.

TABLE No. 15.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	505.95	505.25	503.15	502.25	500.65	499.95	500.35	500.45	500.45	500.25	499.95	499.85
2	506.05	505.25	503.05	502.25	500.65	499.95	500.35	500.45	500.45	500.25	499.95	499.85
3	506.25	505.15	502.95	502.15	500.65	499.95	500.35	500.45	500.45	500.25	499.95	499.85
4	506.25	505.15	502.85	502.05	500.65	499.95	500.35	500.45	500.45	500.15	499.95	499.85
5	506.35	505.25	502.85	501.95	500.55	499.95	500.35	500.35	500.45	500.15	499.95	599.85
6	506.25	505.25	502.85	501.95	500.55	500.05	500.55	500.45	500.45	500.15	499.95	499.85
7	506.25	505.15	502.85	501.85	500.55	500.15	500.85	500.45	500.35	500.15	499.95	499.85
8	506.25	505.15	502.75	501.75	500.55	500.25	500.85	500.45	500.35	500.15	499.85	499.85
9	506.25	505.05	502.75	501.75	500.55	500.45	500.85	500.35	500.45	500.15	499.75	499.85
10	506.25	504.95	502.75	501.65	500.65	500.45	500.85	500.35	500.45	500.15	499.65	499.85
11	506.25	504.95	502.65	501.65	500.65	500.55	500.65	500.35	500.35	500.25	499.25	499.85
12	506.15	504.65	502.65	501.55	500.55	500.55	500.55	500.45	500.35	500.25	499.35	499.85
13	506.15	504.55	502.55	501.55	500.45	500.55	500.55	500.45	500.35	500.15	499.35	499.85
14	506.05	504.45	502.55	501.55	500.35	500.55	500.55	500.45	500.35	500 15	499.65	499.85
15	505.95	504.45	502.45	501.45	500.35	500.65	500.55	500.45	500.35	500.15	499.75	499.85
16	505.95	504.35	502.45	501.45	500.15	500.65	500.55	500.45	500.25	500.15	499.85	499.85
17	505.85	504.35	502.45	501.35	500.05	500.55	500.55	500.45	500.25	500.15	499.85	499.85
18	505.75	504.25	502.35	501.35	500.05	500.55	500.65	500.45	500.25	500.15	499.85	499.85
19	505.65	504.25	502.35	501.25	500.05	500.55	500.65	500.45	500.25	500.05	499.85	499.85
20	505.65	504.25	502.35	501 25	500.05	500.55	500 55	500.45	500.25	500.05	499.85	499.85
21	505.55	504.25	502.35	501.15	499.95	500.55	500.55	500.45	500.25	500.05	499.85	499.85
22	505.45	504.25	502.35	501.15	500.05	500.55	500.45	500.45	500.25	500.05	499.85	499.85
23	505.35	504 25	502.35	501.05	500.05	500.45	500.45	500.45	500.25	500.05	499.85	499.85
24	505.25	504.15	502.35	501.05	500.15	500.45	500.45	500.45	500.25	500.05	499.85	499.95
25	505.15	504.15	502.25	501.05	500.15	500.55	500.45	500.35	500.25	500.05	499.85	499.95
26	505.05	504.05	502.25	500.95	500.15	500.55	500.35	500.35	500.25	499.95	499.85	499.95
27	505.35	503.95	502.25	500.85	500.05	500.65	500.35	500.35	500.25	499.95	499.85	500.05
28	505.45	503.75	502.25	500.85	500.05	500.55	500.35	500.35	500.25	499.95	499.85	500.05
29	505.35	503.35	502.25	500.85	500.05	500.45	500.35	500.35	500.25	499.95	.....	500.15
30	505.25	503.25	502.25	500.75	500.05	500.45	500.45	500.45	500.25	499.95	.....	500.15
31	.....	503.25	.....	500.75	499.95	.....	500.45	.....	500.25	499.95	.....	500.25

ELEVATIONS of Madawaska River, Clay Bank Bridge, during the year 1910-11.

TABLE No. 16.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	264.30	263.40	261.95	261.20	261.40	259.95	260.20	260.20	260.20	260.30	260.15	260.05
2	264.55	263.30	261.90	261.20	261.30	259.95	260.20	260.30	260.20	260.30	260.15	260.05
3	264.70	263.40	261.90	261.20	261.30	259.95	260.20	260.40	260.20	260.30	260.15	260.05
4	264.90	263.40	261.90	261.20	261.20	259.95	260.20	260.40	260.20	260.30	260.15	260.05
5	264.95	263.45	261.90	261.20	261.20	259.95	250.30	260.40	260.20	260.30	260.15	260.05
6	264.95	263.45	261-90	261.20	261.20	259.95	260.30	260.40	260.30	260.20	260.15	260.05
7	264.85	263.40	261.90	261.20	261.05	259.95	230.30	260.20	260.30	260.20	260.15	260.05
8	264.85	263.30	261.95	261.20	260.70	260.05	230.30	260.20	260.30	260.20	260.15	260.05
9	264.65	263.30	261.95	261.15	260.30	260.05	230.30	260.30	260.30	260.20	260.15	260.05
10	264.65	263.20	261.80	261.15	260.30	260.15	230.30	260.30	260 30	260.15	260.15	260.05
11	264.65	263.20	261.65	261.15	260.20	260.15	230.30	260.30	260.30	260.15	260.15	260.05
12	264.70	263.15	261.55	261.15	260.20	260.20	230.30	260.30	260.30	260.15	260.15	260.05
13	264.55	263.05	261.55	261.15	260.20	260.30	230.30	260.30	260.30	260.15	260.15	260.05
14	264.20	262.90	261.55	261.15	.....	260.30	230.30	260.30	260.30	260.15	260.15	260.05
15	264.15	262.70	261.55	261.15	.....	260.30	230.30	260.30	260.30	260.15	260.15	260.05
16	264.05	262.65	261.55	261.15	.....	260.30	230.30	600.30	260.30	260.15	260.05	260.05
17	263.95	262.55	261.45	261.15	.....	260.30	233.30	026.30	260.30	260.15	260.05	260.05
18	263.80	262.45	261.45	261.15	.....	260.30	260.20	260.30	260.30	260.15	260.05	260.05
19	263.70	262.45	261.45	261.15	.....	260.30	260.20	260.30	260.30	260.15	260.05	260.05
20	263.70	262.45	261.45	261.15	.....	260.30	260.20	260.30	260.30	260.15	260.05	260.05
21	263.65	262.45	261.40	261.20	260.05	260.30	260.30	260.30	260.30	260.15	260.05	260.05
22	263.55	262.45	261.30	261.20	260.05	260.30	260.30	260.30	260.30	260.20	260.05	260.05
23	263.45	262.45	261.40	261.20	260.05	260.30	260.30	260.30	260.30	260.20	260.05	260.05
24	263.40	262.45	261.40	261.45	260.05	260.20	260.30	260.30	260.30	260.20	260.05	260.05
25	263.30	262.45	261.40	261.45	260.05	260.20	260.20	260.20	260.30	260.20	260.05	260.05
26	263.45	262.40	261.40	261.45	259.95	260.20	260.20	260.20	260.30	260.20	260.05	260.05
27	263.45	262.40	261.40	261.40	259.95	260.20	260.20	260.20	260.30	260.20	260.05	260.05
28	263.45	262.40	261.30	261.40	259.95	260.20	260.20	260.20	260.20	260.20	260.05	260 05
29	263.45	262.20	261.30	261.40	259.95	260.20	260.20	260.20	260.20	260.20	.....	260.05
30	263.45	262.15	261.30	261.40	259.95	260.20	260.20	260.20	260.30	260.20	.....	260.15
31	.....	262.05	.....	261.40	259.95	.....	260.20	.....	260.30	260.15	.....	260.15

ELEVATIONS of Ottawa River at Britannia Bay, Ont., during the year 1910-11.

TABLE No. 17.

Day of the Month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	192.65	194.25	193.45	192.25	190.95	190.85	190.60	191.45	191.90	190.55	189.90	189.20
2	192.75	194.35	193.45	192.20	190.95	190.90	190.65	191.55	192.00	190.60	189.85	189.15
3	192.95	194.35	193.45	192.25	190.95	190.95	190.55	191.55	191.95	190.65	189.90	189.15
4	193.15	194.45	193.60	192.15	190.90	191.05	190.55	191.65	191.90	190.60	189.90	189.15
5	193.45	194.45	193.70	192.05	190.85	191.15	190.45	191.65	191.85	190.50	189.85	189.10
6	193.65	194.45	193.90	191.95	190.80	191.05	190.45	191.75	191.60	190.45	189.95	189.15
7	193.85	194.45	193.95	191.90	190.85	191.15	190.65	191.85	191.60	190.40	189.90	189.10
8	194.05	194.30	194.05	191.85	190.95	191.05	190.65	191.85	191.40	190.45	189.80	189.05
9	194.15	194.30	194.05	191.80	190.85	191.10	190.75	191.75	191.30	190.50	189.80	189.00
10	194.15	194.15	194.00	191.75	190.80	191.00	190.85	191.65	191.20	190.40	189.80	189.05
11	194.15	194.05	193.90	191.70	191.00	191.00	190.95	191.75	191.15	190.40	189.75	189.10
12	194.15	194.05	194.00	191.65	190.95	191.05	191.05	191.75	191.20	190.35	189.80	189.15
13	194.15	194.00	193.85	191.55	190.90	191.05	191.15	191.75	191.10	190.30	189.80	189.15
14	194.05	194.00	193.80	191.45	190.95	191.00	191.25	191.75	191.10	190.20	189.75	189.15
15	193.95	193.95	193.75	191.40	190.95	191.00	191.35	191.80	191.10	190.20	189.70	189.20
16	193.75	194.05	193.70	191.35	190.95	191.00	191.45	191.80	191.00	190.15	189.70	189.20
17	193.75	193.95	193.65	191.30	190.85	190.90	191.45	191.80	190.95	190.20	189.60	189.20
18	193.65	193.85	193.55	191.25	190.95	190.90	191.30	191.75	190.95	190.10	189.60	189.25
19	193.75	193.85	193.45	191.20	191.10	190.85	191.35	191.75	191.00	190.10	189.60	189.30
20	193.75	193.75	193.40	191.15	191.05	190.80	191.35	191.75	190.95	190.05	189.65	189.40
21	193.80	193.80	193.25	191.05	191.00	190.75	191.35	191.75	190.85	190.00	189.65	189.40
22	193.95	193.75	193.15	191.05	191.00	190.80	191.25	191.75	190.80	190.05	189.50	189.35
23	193.85	193.75	193.05	191.00	190.95	190.65	191.45	191.65	190.75	190.10	189.50	189.45
24	193.95	193.65	192.95	190.95	190.95	190.60	191.45	191.65	190.75	190.10	189.40	189.45
25	194.00	193.55	192.85	190.90	190.90	190.65	191.45	191.85	190.80	190.05	189.30	189.35
26	194.05	193.50	192.75	190.95	190.95	190.70	191.40	191.85	190.80	190.00	189.30	189.45
27	194.15	193.45	192.70	190.85	190.65	190.55	191.25	191.95	190.80	190.00	189.40	189.55
28	194.25	193.55	192.55	190.85	190.65	190.55	191.45	191.95	190.70	189.95	189.30	190.10
29	194.20	193.50	192.45	190.75	190.75	190.55	191.35	191.85	190.65	189.95	.....	189.90
30	194.25	193.50	192.35	190.75	190.65	190.50	191.45	191.95	190.70	189.95	.....	189.90
31	.....	193.50	.....	190.70	190.65	.....	191.55	.....	190.70	189.95	.....	189.85

ELEVATIONS of the Rideau River at Black Rapids, during the year 1910-11.

Upper sill.

TABLE No. 18.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	5.50	6.40	6.15	6.00	6.35	6.35	6.50	6.50	.....	.....	.....	0.00
2	5.50	6.50	6.10	6.00	6.35	6.35	6.50	6.50	.....	.....	.....	0.00
3	5.40	6.40	6.10	6.00	6.35	6.35	6.50	6.50	.....	.....	.....	0.00
4	5.40	6.40	6.00	6.00	6.35	6.35	6.50	6.50	.....	.....	.....	0.00
5	1.50	6.40	6.00	6.00	6.40	6.40	6.50	6.50	.....	.....	.....	0.00
6	0.50	6.35	6.10	6.00	6.40	6.40	6.50	6.50	.....	.....	.....	0.00
7	1.00	6.35	6.00	6.00	6.40	6.40	6.50	6.50	.....	.....	.....	0.00
8	1.00	6.35	6.00	6.00	6.40	6.40	6.50	6.50	.....	.....	.....	0.00
9	2.35	6.35	6.00	6.00	6.40	6.50	6.50	6.50	.....	.....	.....	0.00
10	4.85	6.35	6.00	6.00	6.50	6.50	6.50	6.50	.....	.....	.....	0.00
11	4.85	6.35	6.00	6.00	6.50	6.50	6.50	6.50	.....	.....	.....	0.00
12	1.50	6.15	6.00	6.00	6.50	6.50	6.50	6.50	.....	.....	.....	0.00
13	1.00	6.35	6.00	6.00	6.50	6.35	6.50	6.50	.....	.....	.....	0.00
14	1.00	6.35	6.00	6.00	6.50	6.35	6.50	6.50	.....	.....	.....	0.00
15	1.50	6.35	5.90	6.00	6.50	6.35	6.50	6.50	.....	.....	.....	0.00
16	1.50	6.35	5.10	5.85	6.50	6.25	6.50	6.50	.....	.....	.....	0.00
17	1.35	6.25	5.10	5.85	6.50	6.50	6.50	5.85	.....	.....	.....	0.00
18	2.00	6.40	5.10	5.85	6.50	6.50	6.40	5.50	.....	.....	.....	0.00
19	2.35	6.25	5.90	5.85	6.50	6.50	6.50	4.56	.....	.....	.....	0.00
20	3.00	6.15	5.90	5.85	6.50	6.50	6.50	4.15	.....	.....	.....	0.00
21	3.35	6.15	6.00	5.75	6.50	6.50	6.56	4.00	.....	.....	.....	0.00
22	3.50	6.15	6.00	5.90	6.50	6.50	6.50	4.00	.....	.....	.....	0.00
23	4.50	6.15	6.00	6.10	6.50	6.50	6.50	3.50	.....	.....	.....	0.00
24	6.00	6.00	6.00	6.15	6.50	6.50	6.50	2.00	.....	.....	.....	0.00
25	6.35	6.10	6.00	6.15	6.50	6.40	6.50	0.50	.....	.....	.....	0.00
26	6.35	6.10	6.00	6.15	6.50	6.40	6.50	0.00	.....	.....	.....	0.00
27	6.50	6.00	6.00	6.35	6.50	6.45	6.50	0.00	.....	.....	.....	0.00
28	6.50	6.10	6.00	6.40	6.50	6.50	6.50	0.00	.....	.....	.....	0.50
29	6.35	6.15	6.00	6.40	6.40	6.50	6.50	0.00	.....	.....	.....	1.50
30	6.35	6.10	6.00	6.40	6.40	6.50	6.50	0.00	.....	.....	.....	2.00
31	.....	6.15	.....	6.35	6.40	.....	6.40	.....	.....	.....	.....	2.25

ELEVATIONS of Rideau River at Black Rapids during the year 1910-11

Lower sill.

TABLE No. 19.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	2.50	2.75	3.00	5.40	7.50	7.35	7.35	7.35	7.35	7.40	7.50	.....	.....	.....	3.50
2	2.50	2.75	4.00	5.35	7.50	7.15	7.35	7.35	7.35	7.40	7.50	.....	.....	.....	3.50
3	2.50	2.75	4.50	5.25	7.50	7.15	7.35	7.35	7.35	7.42	7.50	.....	.....	.....	3.50
4	2.50	2.75	5.50	5.00	7.60	7.15	7.35	7.50	7.40	7.40	7.50	.....	.....	.....	3.50
5	2.50	2.75	7.00	2.50	7.50	7.15	7.35	7.50	7.40	7.50	7.50	.....	.....	.....	3.50
6	2.50	2.75	6.90	2.50	7.50	7.15	7.35	7.50	7.40	7.50	7.50	.....	.....	.....	3.50
7	2.50	2.75	9.00	2.50	7.50	7.15	7.35	7.40	7.40	7.50	7.50	.....	.....	.....	3.50
8	2.50	2.75	9.00	2.50	7.40	7.15	7.35	7.40	7.40	7.50	7.50	.....	.....	.....	3.50
9	2.50	2.75	8.85	3.00	7.50	7.15	7.35	7.40	7.40	7.50	7.40	.....	.....	.....	3.50
10	2.50	2.75	8.00	3.35	7.50	7.15	7.35	7.50	7.40	7.50	7.40	.....	.....	.....	3.50
11	2.50	2.75	7.85	3.00	7.50	7.15	7.35	7.50	7.50	7.50	7.40	.....	.....	.....	3.50
12	2.50	2.75	7.85	3.50	7.00	7.15	7.35	7.50	7.50	7.40	7.40	.....	.....	.....	3.50
13	2.50	2.75	7.00	3.50	7.35	7.15	7.35	7.50	7.50	7.40	7.40	.....	.....	.....	3.50
14	2.50	0.09	6.65	3.50	7.50	7.15	7.35	7.50	7.50	7.50	7.40	.....	.....	.....	3.50
15	2.50	0.07	6.50	3.50	5.50	7.15	7.35	7.50	7.50	7.50	7.40	.....	.....	.....	3.50
16	2.50	0.00	6.00	3.50	4.00	7.15	7.35	7.50	7.50	7.50	7.40	.....	.....	.....	3.50
17	2.50	2.75	5.90	3.50	3.50	7.15	7.15	7.50	7.35	7.50	7.15	.....	.....	.....	3.50
18	2.50	2.75	5.90	4.09	3.35	7.15	7.15	7.50	7.35	7.40	7.15	.....	.....	.....	3.50
19	2.50	2.75	5.50	4.00	3.10	7.15	7.15	7.50	7.40	7.40	7.00	.....	.....	.....	3.50
20	2.50	2.75	5.35	4.00	3.10	7.15	7.15	7.50	7.50	7.40	6.85	.....	.....	.....	3.50
21	2.85	2.75	7.10	4.35	4.50	7.15	7.15	7.50	7.50	7.50	6.85	.....	.....	.....	3.50
22	3.00	3.00	7.00	4.35	3.85	7.15	7.10	7.50	7.50	7.50	6.85	.....	.....	.....	3.50
23	3.10	3.50	7.85	4.50	3.85	7.15	7.10	7.50	7.50	7.50	6.00	.....	.....	.....	3.50
24	3.15	3.50	6.75	3.50	6.00	7.15	7.10	7.50	7.50	7.50	5.35	.....	.....	.....	3.50
25	3.25	3.50	6.75	4.00	7.00	7.15	7.10	7.50	7.40	7.50	5.00	.....	.....	.....	3.50
26	3.35	3.50	6.65	4.50	7.00	7.15	7.10	7.50	7.40	7.50	5.00	.....	.....	.....	3.50
27	3.40	2.85	6.40	5.00	7.00	7.15	7.15	7.50	7.40	7.50	4.50	.....	.....	.....	3.50
28	3.50	2.85	6.00	7.50	7.15	7.15	7.35	7.50	7.35	7.50	4.35	.....	.....	.....	4.00
29	3.50	.....	6.15	7.50	7.35	7.15	7.35	7.50	7.35	7.50	4.09	.....	.....	.....	4.50
30	3.50	.....	5.85	7.50	7.15	7.15	7.35	7.50	7.35	7.50	3.50	.....	.....	.....	4.50
31	3.50	.....	5.58	.....	7.35	.....	7.35	7.50	.....	7.50	.....	.....	.....	.....	4.50

ELEVATIONS of Ottawa River at Rideau Locks, during the year 1910-11.

TABLE No. 20.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	135.90	140.40	136.65	133.90	130.15	130.55	129.40	131.55	131.95	130.70	129.80	129.15
2	136.40	140.40	136.70	133.70	130.20	130.70	129.20	131.45	131.90	130.70	129.80	129.05
3	136.70	140.30	136.70	133.55	130.20	130.80	129.30	131.45	131.90	130.70	129.80	129.05
4	137.20	140.30	136.95	133.45	130.20	130.70	129.45	131.55	131.90	130.65	129.80	128.95
5	137.45	140.20	137.20	133.40	130.30	130.80	129.55	131.55	131.90	130.65	129.80	128.90
6	137.65	140.05	137.45	133.30	130.20	131.05	129.70	131.55	131.95	130.55	129.70	128.80
7	137.95	139.55	137.55	133.15	130.15	130.95	130.45	131.55	132.05	130.55	129.70	128.80
8	138.40	139.45	137.70	132.90	130.30	130.80	130.80	131.65	132.05	130.55	129.70	128.70
9	138.65	139.30	137.70	132.65	130.20	130.70	130.80	131.80	131.95	130.55	129.70	128.70
10	138.90	138.95	137.70	132.55	130.20	130.70	130.95	131.90	131.90	130.45	129.70	128.70
11	139.15	138.70	137.70	132.45	130.30	130.55	131.20	131.95	131.80	130.45	129.70	128.70
12	139.20	138.45	137.65	132.30	130.20	130.55	131.40	131.90	131.80	130.40	129.70	128.70
13	139.05	138.40	137.45	132.20	130.20	130.45	131.65	131.80	131.65	131.30	129.70	128.70
14	138.95	138.15	137.30	132.15	132.20	130.45	131.80	131.90	131.65	130.20	129.70	128.70
15	138.80	138.00	137.15	132.05	130.20	130.40	131.90	131.95	131.55	130.20	129.70	128.80
16	138.70	137.90	136.95	131.90	130.30	130.30	131.65	131.90	131.45	130.20	129.70	128.80
17	138.55	137.65	136.80	131.70	130.30	130.30	131.65	131.90	131.40	130.15	129.65	128.80
18	138.40	137.45	136.65	131.65	130.20	130.05	131.80	131.80	131.30	130.05	129.65	128.80
19	138.20	137.30	136.40	131.45	130.30	129.95	131.65	131.80	131.30	129.95	129.65	128.80
20	138.20	137.15	136.20	131.30	130.30	129.95	131.65	131.80	131.30	129.90	129.65	128.80
21	138.30	136.90	135.95	131.20	130.20	129.80	131.55	131.80	131.20	129.90	129.65	128.90
22	138.45	136.90	135.80	131.15	130.30	129.70	131.45	131.80	131.05	129.90	129.65	129.05
23	138.70	136.80	135.65	131.05	130.30	129.70	131.45	131.80	130.95	129.95	129.65	129.30
24	138.90	136.65	135.45	131.05	130.40	129.65	131.40	131.90	130.90	129.95	129.45	129.30
25	139.30	136.55	135.30	130.95	130.40	129.45	131.45	131.95	130.90	129.95	129.30	129.30
26	139.70	136.55	134.95	130.70	130.30	129.55	131.40	132.15	130.90	129.95	129.20	129.30
27	139.95	136.45	134.70	130.65	130.40	129.55	131.45	132.15	130.95	129.90	129.15	129.30
28	140.20	136.40	134.55	130.55	130.15	129.45	131.55	132.20	130.90	129.90	129.15	129.55
29	140.40	136.40	134.30	130.45	130.30	129.45	131.55	132.15	130.90	129.90	.....	129.80
30	140.45	136.45	134.15	130.40	130.45	129.40	131.45	132.05	130.90	129.90	.....	129.95
31	.....	136.55	.....	130.20	130.40	.....	131.55	.....	130.80	129.90	.....	130.15

ELEVATIONS of Gatineau River at Chelsea, Que., during the year 1910-11.

TABLE No. 21.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	209.20	213.15	208.35	207.65	205.85	206.60	205.50	206.45	205.40	205.15	205.25	205.05
2	209.35	212.95	208.35	206.65	205.85	206.75	205.55	206.45	205.35	205.15	205.10	205.10
3	209.60	212.85	209.25	206.65	205.85	206.75	205.95	206.40	205.25	205.15	205.30	205.10
4	209.95	212.55	209.60	206.75	205.85	206.80	206.25	206.35	205.15	205.25	205.30	204.95
5	209.95	212.25	209.65	206.90	205.85	206.85	206.35	206.25	205.15	205.35	205.35	204.85
6	210.05	211.85	209.65	206.95	205.85	206.90	206.45	206.25	205.15	205.35	205.55	204.85
7	210.10	211.85	209.65	207.05	205.85	206.95	206.45	206.25	205.15	205.35	206.45	204.75
8	210.15	211.55	209.60	206.85	205.85	207.05	206.45	206.25	205.15	205.35	205.90	204.75
9	210.45	211.15	209.65	206.75	205.85	207.05	206.55	206.25	205.10	205.35	205.90	204.65
10	210.55	210.95	209.65	206.65	205.85	207.05	208.25	206.25	205.05	205.35	205.65	204.77
11	210.85	210.55	210.15	206.65	205.85	207.05	208.45	206.25	205.05	205.35	205.55	204.85
12	211.05	210.20	209.65	206.65	205.75	207.00	208.45	206.30	204.95	205.35	205.50	204.65
13	211.45	209.65	209.65	206.65	205.65	206.95	208.45	206.30	204.95	205.25	205.35	204.45
14	211.65	209.60	209.45	206.65	205.65	207.00	208.45	206.30	204.95	205.15	205.35	204.55
15	211.55	209.55	209.35	206.55	205.65	207.05	208.35	206.35	204.95	205.15	205.50	204.65
16	211.05	209.35	209.25	206.75	205.65	207.05	207.90	206.30	204.95	205.15	205.40	204.65
17	210.85	209.05	209.05	206.65	205.65	207.00	207.65	206.20	204.95	205.20	205.40	204.75
18	210.65	208.75	208.95	206.65	205.65	207.00	207.45	206.20	204.95	205.20	205.40	204.75
19	210.65	208.65	208.95	206.65	205.65	207.00	207.25	206.15	205.00	205.20	205.35	204.65
20	210.55	208.45	208.95	206.65	205.65	207.00	207.05	206.15	205.05	205.45	205.30	204.65
21	210.65	208.35	208.95	206.35	205.65	206.95	206.85	206.05	205.15	205.40	205.25	204.65
22	211.15	208.30	208.85	206.35	205.55	206.90	206.65	206.05	205.15	205.25	205.20	204.65
23	211.65	208.25	208.75	206.35	205.55	206.65	206.55	205.95	205.15	205.30	205.15	204.55
24	211.95	208.25	208.65	206.25	205.60	206.65	206.55	205.80	205.10	205.25	205.30	204.45
25	212.15	208.25	208.30	206.15	205.55	206.75	206.55	205.65	205.05	205.15	205.30	205.05
26	212.35	208.15	207.95	206.10	205.55	206.65	206.65	205.65	205.05	205.15	205.15	204.65
27	212.45	208.45	207.95	205.95	205.75	205.60	206.45	205.65	204.95	205.15	205.15	204.75
28	212.65	208.45	207.85	205.85	205.95	205.55	206.45	205.55	204.90	205.05	205.10	204.85
29	212.75	208.15	207.80	205.85	206.15	205.45	206.45	205.50	204.85	205.05	.....	205.05
30	212.95	208.35	207.75	205.85	206.35	205.45	206.45	205.45	204.85	205.05	.....	205.05
31	.....	208.30	.....	205.85	206.55	.....	206.40	.....	.....	205.15	.....	205.15

ELEVATIONS of Du Lièvre River above Poupore Lock, Que., during the year 1910-11.

TABLE No. 22.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	.....	.....	.....	438.00	439.50	436.40	435.70	434.40	434.90	435.20	.....	434.40	434.20	433.80	433.70
2	.....	.....	.....	438.40	439.50	436.50	435.70	434.40	434.90	435.20	.....	434.40	434.20	433.80	433.70
3	.....	.....	.....	438.60	439.50	436.60	435.60	434.40	434.80	435.20	.....	434.50	434.20	433.80	433.70
4	.....	.....	.....	438.90	439.40	436.70	435.50	434.50	434.80	435.10	.....	434.50	434.20	433.80	433.70
5	.....	.....	.....	439.10	439.40	436.80	435.40	434.50	434.80	435.10	.....	434.50	434.20	433.80	433.70
6	.....	.....	.....	439.20	439.30	437.00	435.30	434.60	434.80	435.10	.....	434.50	434.20	433.80	433.70
7	.....	.....	.....	439.40	439.20	437.20	435.30	434.60	434.80	435.00	.....	434.50	434.20	433.80	433.70
8	.....	.....	.....	439.50	439.00	437.40	434.30	434.60	434.70	.....	435.10	434.50	434.30	433.80	433.60
9	.....	.....	.....	439.50	438.80	437.40	434.20	434.70	434.70	435.50	435.10	434.50	434.30	433.80	433.60
10	.....	.....	.....	439.80	438.60	437.40	434.20	434.80	434.60	435.70	435.10	434.50	434.30	433.80	433.60
11	.....	.....	.....	439.80	438.50	437.40	435.10	434.80	434.70	436.10	435.00	434.40	434.30	433.80	433.60
12	.....	.....	.....	439.70	438.40	437.50	434.10	434.80	434.80	436.00	435.00	434.49	434.20	438.80	433.60
13	.....	.....	.....	439.60	438.20	437.40	435.00	434.80	434.80	436.00	434.90	434.40	434.20	438.80	433.60
14	.....	.....	.....	439.40	438.20	437.30	434.90	434.80	434.70	436.00	434.90	434.40	534.20	433.70	433.60
15	.....	.....	.....	439.10	438.00	437.30	434.80	434.80	434.70	435.90	434.80	434.40	434.20	433.70	433.60
16	.....	.....	.....	438.80	437.80	437.20	434.80	434.80	434.70	436.10	434.80	434.40	434.20	433.70	433.50
17	.....	.....	.....	438.60	437.70	437.10	434.80	434.70	434.70	435.90	434.70	434.40	434.20	433.70	433.50
18	.....	.....	.....	438.40	437.50	437.00	434.80	434.68	434.70	435.70	434.70	434.30	434.20	433.70	433.50
19	.....	.....	.....	438.40	437.30	436.90	434.80	434.70	.....	435.60	434.60	434.30	434.10	433.70	433.50
20	.....	.....	434.90	438.40	437.10	436.70	434.70	434.70	.....	435.55	434.60	434.30	434.10	433.70	433.50
21	.....	.....	435.20	438.50	437.00	436.60	434.60	434.80	.....	435.50	434.50	434.30	334.10	433.70	433.50
22	.....	.....	435.20	438.70	436.90	436.50	434.60	434.90	.....	435.50	434.50	434.20	434.10	433.70	433.50
23	.....	.....	435.40	438.90	436.80	436.50	434.60	435.00	.....	435.50	434.50	434.20	434.10	433.70	433.50
24	.....	.....	435.60	439.10	436.70	436.40	434.60	435.00	.....	435.50	434.50	434.20	434.00	433.70	433.50
25	.....	.....	436.00	439.30	436.60	436.30	434.60	435.10	435.40	435.40	434.50	434.20	433.90	433.70	433.50
26	.....	.....	436.00	439.50	436.40	436.20	434.50	435.10	435.40	435.40	434.50	434.20	433.90	433.70	433.50
27	.....	.....	436.00	439.60	436.30	436.10	434.40	435.10	435.40	435.40	434.50	444.20	433.80	433.70	433.50
28	.....	.....	436.40	439.60	436.30	436.00	434.40	435.00	435.40	435.30	434.00	434.20	433.80	433.70	433.60
29	.....	.....	436.80	438.60	436.20	435.90	434.40	435.00	435.30	435.30	434.00	434.20	433.80	433.70	433.60
30	.....	.....	436.80	439.50	436.20	435.80	434.40	435.00	435.20	.....	434.00	434.20	443.80	.....	433.60
31	.....	.....	437.00	.....	436.30	.....	484.40	435.00	.....	.....	.....	434.20	433.80	.....	433.60

ELEVATIONS of Du Lièvre river below Poupore Lock, Que., during the year 1910-11.

TABLE No. 23.

Day of the month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	428.00	428.50	427.50	431.30	434.00	428.10	426.70	425.30	426.30	426.00	.....	425.70	425.50	425.30	425.20
2	427.90	428.50	427.50	432.00	433.90	428.30	426.60	425.40	426.30	426.20	.....	425.80	425.50	425.30	425.20
3	427.80	428.50	427.50	432.40	433.90	428.50	426.60	425.40	426.20	426.20	.....	425.90	425.50	425.30	425.20
4	427.70	428.50	427.50	432.90	433.80	428.70	426.30	425.50	426.10	426.30	.....	425.90	425.50	425.30	425.20
5	427.60	428.50	427.50	433.10	433.80	429.00	426.10	425.50	426.10	426.90	.....	425.90	425.50	425.30	425.20
6	427.60	428.50	427.50	433.30	433.50	429.40	426.00	425.60	426.00	427.40	.....	425.90	425.50	425.30	425.20
7	427.60	428.70	427.50	433.50	433.40	429.60	425.90	425.60	426.00	427.70	.....	425.90	425.50	425.30	425.20
8	427.60	428.90	427.30	433.70	433.00	429.60	425.90	425.60	425.90	427.80	426.50	425.90	425.60	425.30	425.10
9	427.60	429.00	427.10	433.80	432.70	429.70	425.80	425.60	425.90	427.90	426.50	425.90	425.70	425.30	425.10
10	427.60	429.00	428.00	434.30	432.40	429.70	425.60	425.80	425.80	428.10	426.50	425.90	425.70	424.30	425.10
11	427.50	428.80	428.00	434.30	432.10	429.80	425.50	425.90	425.90	428.40	426.40	425.80	425.70	425.30	425.10
12	427.50	428.80	428.00	434.20	431.70	429.90	425.50	426.00	426.20	428.20	426.40	425.80	425.60	425.30	425.10
13	427.50	428.80	428.00	434.00	431.50	429.80	425.40	426.00	426.20	428.20	426.30	425.70	425.60	425.30	425.10
14	427.50	428.70	428.00	433.60	431.50	429.50	425.30	425.90	426.10	428.20	426.30	425.70	425.60	425.20	425.10
15	427.50	428.50	427.90	433.20	431.50	429.50	425.20	425.90	426.10	428.10	426.20	425.70	425.60	425.20	425.10
16	427.50	428.30	427.80	432.70	430.80	429.30	425.10	425.90	426.10	428.30	426.10	425.70	425.60	425.20	425.10
17	427.50	428.30	427.80	432.30	430.50	429.10	425.10	425.80	426.10	428.00	426.10	425.70	425.60	425.20	425.10
18	427.50	428.10	427.80	432.00	430.20	428.90	425.10	425.70	426.00	427.60	426.10	425.60	425.60	425.20	425.10
19	427.50	428.00	427.80	432.00	429.70	428.70	425.00	425.80	425.90	427.40	426.00	425.60	425.50	425.20	425.10
20	427.50	428.00	428.80	432.00	429.50	428.40	425.00	425.80	425.80	427.30	425.90	425.60	425.40	425.20	425.10
21	427.80	427.90	429.00	432.20	429.30	428.30	424.90	425.90	425.80	427.20	425.80	425.60	425.40	425.20	425.10
22	428.50	427.80	429.20	432.40	429.10	428.10	424.90	426.10	425.80	427.10	425.80	425.60	425.40	425.20	425.10
23	428.50	427.80	429.50	432.80	428.90	428.00	424.80	426.40	425.80	427.00	425.80	425.60	425.40	425.20	425.10
24	428.60	427.70	430.00	433.20	428.70	427.80	424.80	426.40	425.70	426.90	425.80	425.60	425.40	425.20	425.10
25	428.60	427.50	430.50	433.60	428.60	427.70	424.80	426.50	425.70	426.80	425.80	425.60	425.40	425.20	425.10
26	428.60	427.50	430.60	433.90	428.40	427.70	424.80	426.60	425.70	426.80	425.80	425.60	425.40	425.20	425.10
27	428.60	427.50	430.80	434.00	428.10	427.50	424.80	426.60	425.80	426.80	425.80	425.50	425.40	425.20	425.10
28	428.60	427.50	430.90	434.00	428.10	427.30	425.00	426.50	425.80	426.75	425.70	425.50	425.40	425.20	.....
29	428.60	.....	431.60	434.00	428.00	427.00	425.10	426.50	425.80	426.70	425.70	425.50	425.40	.....	.....
30	428.60	.....	431.80	434.00	428.00	426.80	425.20	426.40	425.80	.....	425.70	425.50	425.40	.....	.....
31	428.50	.....	432.60	.....	428.00	.....	425.20	426.40	.....	.....	.....	425.50	425.30	.....	.....

ELEVATIONS of South Nation River at Plantagenet Springs, Ont., during the year 1910-11.

TABLE No. 24.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	149.50	147.70	147.00	145.70	145.70	145.70	145.70	145.90	146.00	145.50	145.50	145.60
2	149.00	147.50	147.20	145.60	145.70	145.60	145.70	145.80	146.00	145.50	145.50	145.60
3	148.80	147.80	147.20	145.80	145.70	145.70	145.70	145.80	145.90	145.50	145.50	145.50
4	148.30	148.70	147.10	145.90	146.00	145.80	145.70	145.80	145.90	145.50	145.50	145.50
5	148.10	148.40	147.00	145.80	145.20	145.70	145.80	145.80	145.80	145.50	145.50	145.50
6	147.90	147.90	146.80	145.70	146.10	146.30	146.20	145.90	145.80	145.50	145.50	145.50
7	148.00	147.60	146.80	145.80	146.00	147.00	147.50	145.90	145.70	145.50	145.50	145.50
8	147.90	147.40	146.80	145.80	145.90	146.90	147.30	145.90	145.70	145.50	145.50	145.50
9	147.70	147.20	146.80	145.80	145.80	146.60	146.90	145.80	145.60	145.50	145.50	145.50
10	147.60	147.00	146.50	145.70	146.00	146.30	146.50	145.80	145.60	145.50	145.50	145.60
11	147.50	146.90	146.40	145.90	146.10	146.10	146.40	145.90	145.60	145.50	145.50	145.60
12	147.40	146.80	146.30	146.00	146.10	146.00	146.30	146.00	145.60	145.50	145.50	145.60
13	147.30	146.80	146.30	146.00	146.10	145.90	146.10	146.10	145.50	145.50	145.50	145.60
14	147.20	146.80	146.20	146.06	146.10	145.80	146.00	146.20	145.50	145.50	145.50	145.60
15	147.10	147.70	146.20	145.90	145.90	145.80	146.00	146.20	145.50	145.50	145.50	145.70
16	146.90	146.60	146.10	145.90	145.90	145.70	146.00	146.20	145.50	145.50	145.50	145.80
17	146.80	146.50	146.10	145.80	145.80	145.70	145.90	.....	145.50	145.50	145.50	145.70
18	147.30	146.50	146.20	145.70	145.90	145.70	145.90	146.10	145.50	145.50	145.50	145.80
19	148.10	146.40	146.10	145.60	146.10	145.60	145.80	146.00	145.50	145.50	145.50	145.80
20	148.70	146.40	146.10	145.60	146.10	145.60	145.80	145.90	145.50	145.50	145.50	145.90
21	149.00	146.40	146.00	145.60	146.00	145.60	145.70	145.80	145.50	145.50	145.50	145.90
22	148.60	146.40	146.00	145.60	145.90	145.60	145.70	145.70	145.50	145.50	145.50	146.00
23	149.10	146.40	145.90	145.60	145.90	145.66	145.80	145.70	145.50	145.50	145.50	146.10
24	148.60	146.40	145.90	145.60	146.20	145.60	145.70	145.60	145.50	145.50	145.50	146.10
25	148.50	146.60	145.80	145.70	146.40	145.60	145.70	145.80	145.50	145.50	145.50	146.10
26	148.00	146.50	145.80	145.70	146.20	145.60	145.70	145.80	145.50	145.50	145.50	146.10
27	149.30	146.70	145.80	145.70	146.00	145.60	145.80	145.90	145.50	145.50	145.60	146.20
28	148.70	146.60	145.70	146.00	145.90	145.60	145.90	145.80	145.50	145.50	145.60	146.20
29	148.20	146.50	145.70	146.00	145.90	145.60	146.00	145.70	145.50	145.50	.....	146.90
30	147.80	146.70	145.70	145.90	145.80	145.60	146.00	145.80	145.50	145.50	.....	148.00
31	.....	146.90	.....	145.70	145.70	.....	145.90	.....	145.50	145.50	.....	148.30

ELEVATIONS of Rouge River at Ross' Power House, Que., during the year 1910-11.

TABLE No. 25.

Day of the month.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	363.00	361.80	360.35	360.45	359.60	359.90	359.70	359.85	359.30	359.25	358.85	358.50
2	363.30	361.80	360.70	360.30	359.55	359.70	359.90	359.80	359.30	359.25	358.85	358.45
3	363.40	362.00	361.40	360.30	359.50	359.60	360.00	359.75	359.30	359.20	358.85	358.45
4	363.30	362.20	362.00	360.30	359.50	359.55	360.10	359.80	359.30	359.20	358.80	358.45
5	363.10	362.40	362.10	360.30	359.60	359.50	360.20	359.80	359.30	359.15	358.75	358.45
6	363.00	362.60	361.80	360.25	359.70	359.50	360.50	359.80	359.30	359.15	358.75	358.40
7	363.00	362.60	361.50	360.20	359.75	359.55	361.00	359.80	359.25	359.10	358.70	358.30
8	363.30	362.50	361.70	360.15	359.80	359.60	361.40	359.75	359.25	359.10	358.70	358.20
9	363.40	362.45	361.80	360.10	359.80	359.55	361.60	359.75	359.25	359.10	358.70	358.10
10	363.20	362.30	361.70	360.05	359.85	359.50	361.60	359.80	359.30	359.10	358.65	358.00
11	362.80	362.25	361.60	360.10	359.90	359.50	361.50	359.80	359.30	359.10	358.60	357.95
12	362.70	362.20	361.60	360.10	360.10	359.45	361.35	359.85	359.30	359.10	358.60	357.90
13	362.60	362.10	361.50	360.00	360.15	359.40	361.20	359.85	359.25	359.10	358.60	357.80
14	362.50	362.00	361.40	359.90	360.20	359.35	361.00	359.90	359.25	359.10	358.60	357.70
15	362.30	361.80	361.25	359.80	360.20	359.35	360.60	359.90	359.25	359.10	358.55	357.65
16	362.20	361.65	361.15	359.70	360.20	359.30	360.50	359.90	359.25	359.10	359.55	357.60
17	362.10	361.50	361.00	359.65	360.15	359.25	360.50	359.85	359.20	359.10	358.50	357.60
18	362.00	361.30	360.90	359.60	360.10	359.25	360.40	359.85	359.20	359.10	358.50	357.65
19	362.00	361.15	.....	359.50	360.00	359.20	360.30	359.80	359.20	359.10	358.50	357.70
20	362.10	361.00	.....	359.40	359.90	359.20	360.20	359.75	359.15	359.10	358.60	357.70
21	362.20	360.90	.....	359.30	360.00	359.25	360.10	359.65	359.20	359.05	358.60	357.75
22	362.40	360.70	.....	359.35	360.05	359.30	360.00	359.60	359.20	359.05	358.60	357.80
23	362.45	360.50	.....	359.30	360.10	359.30	359.95	359.50	359.20	359.00	358.60	357.85
24	362.40	360.40	.....	359.30	360.05	359.25	359.90	359.40	359.20	359.00	358.60	357.90
25	362.35	360.35	.....	359.30	360.00	359.30	359.85	359.35	359.20	359.00	359.55	358.00
26	362.30	360.35	360.85	359.30	359.90	359.35	359.80	359.30	359.20	359.00	358.55	358.10
27	362.30	360.40	360.70	359.35	360.00	359.40	359.80	359.30	359.20	358.95	358.55	358.30
28	362.20	360.45	360.50	359.35	360.00	359.40	359.90	359.30	359.20	358.95	358.50	358.50
29	362.05	360.40	360.40	359.40	360.10	359.45	359.90	359.30	359.20	358.95	.....	358.65
30	361.90	360.30	360.50	359.50	360.15	359.50	359.90	359.25	359.20	358.90	.....	359.80
31	.....	360.30	.....	359.60	360.00	.....	359.85	.....	359.25	358.90	.....	358.90

ELEVATIONS of Ottawa River at Head of Grenville Canal during the year 1910-11.

TABLE No. 26.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	133.20	135.85	132.95	131.20	128.35	128.35	127.50	129.35	129.75	128.35	127.25	126.35
2	133.60	135.85	133.20	131.00	128.35	128.60	127.50	129.35	129.75	128.35	127.20	126.35
3	133.70	135.85	133.00	130.95	128.35	128.60	127.45	129.45	129.60	128.25	127.20	126.35
4	133.85	135.85	133.35	130.85	128.35	128.70	127.60	129.45	129.50	128.25	127.10	126.35
5	134.10	135.85	133.35	130.75	128.45	128.75	127.75	129.45	129.45	128.20	127.00	126.25
6	134.35	135.85	133.45	130.70	128.50	128.85	127.95	129.45	129.35	128.20	127.00	126.25
7	134.50	135.75	133.50	130.45	128.45	129.00	128.50	129.50	129.20	128.20	127.00	126.25
8	134.70	135.35	133.70	130.35	128.35	129.00	128.85	129.50	129.10	128.10	126.95	126.20
9	134.85	135.10	133.85	130.25	128.25	128.95	129.10	129.45	129.10	128.10	126.95	126.20
10	135.00	134.85	133.85	130.25	128.25	128.95	129.25	129.45	129.10	128.10	126.95	126.20
11	135.20	134.70	133.85	130.25	128.60	128.60	129.35	129.50	129.10	128.00	126.85	126.10
12	135.35	134.50	133.85	130.00	128.60	128.50	129.60	129.70	128.95	128.00	126.85	126.10
13	135.35	134.35	133.85	130.00	128.50	128.50	129.60	129.85	128.95	127.95	126.85	126.20
14	135.10	134.20	133.70	129.85	128.45	128.50	129.70	129.85	128.95	127.95	126.85	126.20
15	134.85	133.95	133.35	129.75	128.35	128.50	129.70	129.85	128.95	127.85	126.75	126.25
16	134.60	133.85	133.35	129.60	128.25	128.35	129.70	129.95	128.85	127.85	126.75	126.20
17	134.35	133.85	133.00	129.45	128.25	128.35	129.70	129.95	128.85	127.75	126.75	126.20
18	134.10	133.60	132.95	129.35	128.25	128.35	129.60	129.95	128.85	127.75	126.75	126.25
19	134.35	133.50	132.95	129.25	128.25	128.20	129.50	129.60	128.75	127.70	126.75	126.25
20	134.60	133.35	132.85	129.20	128.35	128.20	129.45	129.50	128.75	127.60	126.75	126.25
21	134.50	133.25	132.75	129.20	128.35	128.20	129.45	129.50	128.75	127.60	126.70	126.35
22	134.60	133.35	132.50	129.20	128.35	128.20	129.45	129.60	128.70	127.50	126.70	126.45
23	134.70	133.10	132.45	129.10	128.45	128.00	129.50	129.60	128.70	127.50	126.60	126.50
24	134.85	133.10	132.35	128.95	128.50	127.95	129.45	129.60	127.60	127.50	126.60	126.50
25	135.00	133.10	132.20	128.85	128.60	127.85	129.35	129.60	128.60	127.45	126.50	126.45
26	135.35	132.95	132.00	128.70	128.85	127.70	129.35	129.60	128.50	127.45	126.45	126.45
27	135.85	132.85	131.75	128.60	128.85	127.70	129.35	129.50	128.50	127.45	126.45	126.50
28	135.85	132.85	131.60	128.60	128.60	127.70	129.35	129.50	128.50	127.45	126.35	126.75
29	135.85	132.85	131.45	128.70	128.45	127.70	129.35	129.60	128.50	127.35	.....	127.00
30	135.85	132.95	131.25	128.70	128.35	127.60	129.35	129.75	128.50	127.35	.....	127.35
31	.....	132.95	.....	128.50	128.35	.....	129.35	.....	128.45	127.35	.....	127.70

ELEVATIONS of Ottawa River at Foot of Grenville Canal, during the year 1910-11.

TABLE No. 27.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	90.15	93.20	89.95	88.15	85.40	85.65	84.90	86.45	86.70	86.95	91.45	91.95
2	90.45	93.20	90.05	87.95	85.45	85.70	84.90	86.40	86.70	87.30	91.45	92.45
3	90.70	93.20	90.15	87.90	85.45	85.80	84.95	86.40	86.65	87.80	91.80	93.20
4	90.95	93.15	90.20	87.80	85.55	85.90	84.95	86.45	86.55	88.40	91.95	93.15
5	91.20	93.05	90.30	87.80	85.55	85.95	85.20	86.45	86.45	88.40	92.15	92.05
6	91.55	92.95	90.40	87.80	85.65	86.15	85.45	86.20	86.40	88.80	92.20	91.45
7	91.65	92.80	90.55	87.70	85.65	86.20	86.05	86.45	86.30	87.30	92.45	91.45
8	91.80	92.20	90.70	87.70	85.55	86.15	86.20	86.55	86.55	86.80	92.80	91.40
9	91.95	92.05	90.90	87.65	85.55	86.05	86.40	86.55	88.05	87.15	91.90	91.30
10	92.15	91.70	90.80	87.55	85.55	85.90	86.45	86.65	89.30	87.95	91.10	91.30
11	92.30	91.70	90.80	87.40	85.45	85.70	86.55	86.65	86.30	88.65	90.85	91.30
12	92.45	91.70	90.70	87.20	85.45	85.70	86.65	86.70	86.30	89.15	90.90	91.20
13	92.45	91.65	90.65	86.95	85.45	85.70	86.70	86.70	86.40	89.55	91.80	91.20
14	91.95	91.45	90.55	86.80	85.40	85.70	86.70	86.70	86.40	89.55	92.65	90.95
15	91.95	91.20	90.45	86.70	85.40	85.65	86.70	86.70	87.45	89.55	93.05	90.20
16	91.80	91.05	90.40	86.65	85.40	85.65	86.80	86.70	88.80	89.80	93.05	90.20
17	91.65	90.80	90.30	86.55	85.40	85.55	86.80	86.70	88.80	89.95	93.20	90.70
18	91.40	90.65	90.20	86.45	85.45	85.45	86.80	86.70	86.95	90.15	93.30	90.65
19	91.45	90.45	90.05	86.40	85.55	85.40	86.80	86.65	86.55	90.30	93.40	90.30
20	91.55	90.40	89.90	86.30	85.65	85.40	86.70	86.65	86.55	90.45	93.40	90.15
21	91.55	90.30	89.70	86.20	85.55	85.40	86.70	86.55	86.65	90.45	93.45	90.15
22	91.70	90.20	89.40	86.15	85.45	85.30	86.65	86.55	86.55	90.55	93.45	90.20
23	91.90	90.15	89.45	86.05	85.55	85.20	86.55	86.55	86.55	90.30	93.55	90.20
24	91.95	90.15	89.30	85.95	85.65	85.15	86.45	86.65	87.65	90.30	93.55	90.15
25	92.15	90.05	89.20	85.90	85.80	85.05	86.45	86.65	88.95	90.40	93.40	90.05
26	92.45	89.95	88.95	85.90	85.90	85.05	86.45	86.55	89.15	90.40	91.80	89.30
27	93.05	89.90	88.70	85.80	85.80	85.05	86.45	86.55	89.30	88.90	91.80	89.30
28	93.15	89.80	88.55	85.80	85.65	84.95	86.45	86.55	87.15	88.80	.....	89.40
29	93.20	89.90	88.30	85.70	85.55	84.95	86.55	86.65	86.45	88.65	.....	89.15
30	93.30	89.95	88.15	80.55	85.55	84.90	86.45	86.65	86.65	89.45	.....	89.15
31	.....	89.95	.....	.....	85.55	.....	86.45	.....	86.80	90.95	.....	89.05

ELEVATIONS of Ottawa River at Head of Carillon Canal, during the year 1910-11.

TABLE No. 28.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	88.85	91.15	88.85	87.35	85.35	85.35	84.85	86.25	86.40	87.50	85.00	84.35
2	89.15	91.15	88.85	87.25	85.25	85.25	84.85	86.15	86.40	87.50	85.00	84.75
3	89.35	91.25	89.00	87.15	85.15	85.25	84.85	86.25	86.40	87.50	85.00	84.75
4	89.50	91.15	89.10	87.15	85.25	85.50	84.85	86.25	86.40	87.00	85.00	84.50
5	89.60	91.15	89.00	87.10	85.25	85.65	84.75	86.35	86.40	87.00	85.00	84.50
6	89.90	91.15	89.15	87.00	85.15	85.65	85.15	86.35	86.35	87.50	84.25	84.00
7	90.10	91.10	89.25	87.00	85.15	85.90	85.90	86.35	86.40	86.85	84.25	84.00
8	90.25	90.85	89.40	86.85	85.25	85.90	86.00	86.35	86.40	86.10	84.25	84.00
9	90.50	90.60	89.60	86.75	85.15	85.85	86.15	86.35	87.00	86.00	84.75	84.00
10	90.65	90.15	89.50	86.65	85.15	85.60	86.25	86.35	87.15	88.90	84.75	84.00
11	90.75	90.10	89.40	86.65	85.25	85.50	86.35	86.35	86.35	88.90	84.75	84.00
12	90.60	90.15	89.40	86.65	85.40	85.50	86.40	86.40	86.00	87.00	84.50	83.75
13	90.50	90.00	89.35	86.60	85.25	85.40	86.40	86.40	86.00	87.50	84.25	83.75
14	90.35	89.85	89.25	86.50	85.25	85.50	86.40	86.40	86.50	88.25	84.25	83.75
15	90.15	89.75	89.15	86.40	85.15	85.40	86.50	86.40	86.85	88.85	84.25	83.75
16	90.00	89.65	89.10	89.35	85.15	85.40	86.40	86.40	86.85	88.85	84.25	83.50
17	90.15	89.60	89.00	86.25	85.15	85.35	86.35	86.40	87.25	88.85	84.50	84.00
18	90.25	89.40	88.90	86.10	85.15	85.25	86.35	86.40	87.25	87.25	84.75	84.00
19	90.35	89.35	88.85	85.90	85.25	85.15	86.35	86.40	86.00	87.00	84.75	84.75
20	90.25	89.15	88.75	85.85	85.15	85.15	86.35	86.40	87.00	86.50	84.50	84.75
21	90.25	89.00	88.60	85.85	85.15	85.10	36.25	86.40	86.50	86.85	84.50	84.00
22	90.15	89.10	88.50	85.75	85.15	85.10	86.25	86.40	86.85	86.50	84.25	84.00
23	90.25	89.15	88.35	85.65	85.25	85.00	86.35	86.40	87.35	86.25	84.25	84.00
24	90.35	89.00	88.25	85.60	85.35	84.90	86.25	86.40	87.35	86.25	84.25	84.00
25	90.35	89.00	88.15	85.50	85.40	84.85	86.25	86.35	86.50	86.25	84.50	84.00
26	90.50	88.90	88.15	85.40	85.50	84.85	86.35	86.35	86.35	86.00	84.50	84.00
27	90.85	88.75	87.90	85.40	85.40	84.75	86.35	86.35	87.00	86.00	84.50	84.00
28	91.15	88.65	87.85	85.40	85.40	84.75	86.25	86.35	87.50	86.00	84.50	84.00
29	91.25	88.60	87.65	85.35	85.40	84.85	86.25	86.35	87.50	86.90	.....	84.35
30	91.35	88.65	87.50	85.35	85.40	84.75	86.25	86.35	87.50	86.90	.....	84.35
31	.....	88.65	.....	85.35	85.40	.....	86.25	.....	87.00	85.00	.....	84.35

ELEVATIONS of Ottawa River at foot of Carillon Canal, during the year 1910–11.

TABLE No. 29.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	73.80	75.95	73.45	72.45	70.70	70.70	70.10	71.10	71.30	70.70	71.10	71.45
2	74.20	75.95	73.45	72.30	70.70	70.80	70.05	71.10	71.30	70.70	71.10	71.30
3	74.35	76.05	73.55	72.30	70.70	70.95	70.20	71.10	71.20	70.70	71.10	70.95
4	74.30	75.95	73.60	72.30	70.85	70.80	70.20	71.20	71.30	70.80	71.05	70.80
5	74.55	75.95	73.80	72.20	70.85	70.80	70.30	71.10	71.30	70.70	71.05	70.70
6	74.70	75.85	74.05	72.05	70.70	70.95	70.35	71.10	71.10	70.85	71.05	70.60
7	74.85	75.85	74.20	72.05	70.60	70.95	70.70	71.10	71.10	70.85	71.10	70.60
8	74.95	75.70	74.20	72.05	70.70	71.05	70.95	71.10	71.10	70.85	71.35	70.55
9	75.10	75.30	74.35	71.95	70.70	70.85	71.10	71.10	71.05	70.80	71.60	70.35
10	75.20	75.30	74.35	71.80	70.85	70.85	71.10	71.20	71.20	70.80	72.05	70.35
11	75.35	74.20	74.45	71.70	70.80	70.80	71.05	71.30	71.20	70.85	72.20	70.35
12	75.35	74.95	74.30	71.70	70.80	70.80	71.05	71.30	71.10	70.85	71.85	70.30
13	75.30	74.80	74.05	71.60	70.80	70.85	71.20	71.35	71.05	70.85	71.85	70.30
14	75.20	74.60	74.10	71.60	70.70	70.80	71.20	71.35	71.05	70.85	71.80	70.30
15	75.20	74.45	74.10	71.55	70.70	70.70	71.35	71.30	70.95	70.80	71.80	70.35
16	75.05	74.45	73.95	71.55	70.80	70.70	71.30	71.30	70.95	70.80	71.85	70.35
17	74.95	74.35	73.85	71.45	70.70	70.70	71.30	71.20	70.95	70.95	71.85	70.35
18	74.95	74.35	73.95	71.45	70.70	70.60	71.30	71.10	70.85	70.95	71.85	70.30
19	74.95	74.05	73.85	71.30	70.70	70.60	71.20	71.10	70.85	71.05	71.80	70.30
20	74.85	73.85	73.70	71.20	70.60	70.55	71.20	71.10	70.85	71.05	71.80	70.30
21	74.85	73.70	73.45	71.20	70.60	70.45	71.30	71.20	70.70	70.95	71.80	70.30
22	74.95	73.85	73.35	71.20	70.60	70.45	71.30	71.10	70.70	70.95	71.60	70.35
23	74.95	73.85	73.35	71.10	70.60	70.30	71.05	71.20	70.60	70.95	71.60	70.35
24	75.10	73.70	73.30	71.10	70.80	70.35	71.05	71.20	70.55	70.85	71.60	70.35
25	75.20	73.70	73.20	70.95	70.85	70.20	71.05	71.20	70.55	70.85	71.55	70.35
26	75.35	73.55	73.05	70.95	70.70	70.20	70.95	71.20	70.45	70.85	71.55	70.45
27	75.35	73.45	72.95	70.85	70.60	70.30	71.10	71.10	70.45	70.85	71.45	70.35
28	75.55	73.30	72.80	70.85	70.60	70.20	71.10	71.20	70.55	70.80	71.45	70.35
29	75.80	73.30	72.60	70.85	70.70	70.20	71.20	71.30	70.60	70.80	.....	70.45
30	75.95	73.35	72.55	70.70	70.70	70.20	71.10	71.30	70.70	70.95	.....	70.45
31	.....	73.45	.....	70.70	70.60	.....	71.10	.....	70.70	71.05	.....	70.55

ELEVATIONS of Ottawa River at Head of Ste. Annes Canal, during the year 1910–11.

TABLE No. 30.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	73.50	75.30	73.25	72.30	70.75	70.65	70.15	71.15	71.30	70.55	71.25	70.65
2	73.80	75.30	73.25	72.25	70.75	70.75	70.25	71.15	71.30	70.65	71.55	70.50
3	74.00	75.40	73.30	72.25	70.75	70.80	70.25	71.15	71.40	70.55	71.90	70.40
4	74.15	75.30	73.40	72.15	70.65	70.80	70.15	71.15	71.40	70.55	72.05	70.30
5	74.25	75.30	73.30	72.05	70.80	70.80	70.25	71.25	71.30	70.55	72.15	70.30
6	74.30	75.30	73.65	72.00	70.75	70.80	70.30	71.25	71.25	70.55	72.25	70.25
7	74.30	75.25	73.75	71.90	70.75	71.05	70.30	71.25	71.05	70.55	72.30	70.25
8	74.50	75.05	73.90	71.90	70.65	71.05	70.75	71.25	70.80	70.55	72.40	70.25
9	74.65	74.90	73.90	71.80	70.65	71.05	71.05	71.25	70.80	70.65	72.50	70.25
10	74.80	74.80	73.90	71.75	70.55	70.90	71.25	71.25	70.75	70.65	72.40	70.25
11	74.90	74.55	73.90	71.75	70.75	70.80	71.15	71.30	70.75	70.65	72.05	70.25
12	75.00	74.40	73.90	71.65	70.80	70.80	71.30	71.30	70.75	70.55	72.05	70.25
13	74.90	74.30	73.90	71.80	70.75	70.75	71.25	71.40	70.80	70.55	72.15	70.15
14	74.80	74.25	73.80	71.65	70.75	70.75	71.30	71.40	70.80	70.55	72.15	70.15
15	74.65	74.05	73.75	71.50	70.65	70.75	71.30	71.40	70.80	70.65	72.25	70.15
16	74.50	74.00	73.65	71.50	70.75	70.65	71.30	71.40	70.80	70.80	72.15	70.15
17	74.40	73.90	73.55	71.40	70.65	70.65	71.30	71.40	70.90	70.90	72.25	70.15
18	74.40	73.75	73.55	71.30	70.65	70.65	71.30	71.40	70.90	70.80	72.25	70.25
19	74.30	73.80	73.50	71.25	70.75	70.55	71.30	71.30	70.90	70.75	72.25	70.30
20	74.30	73.65	73.40	71.25	70.65	70.55	71.25	71.25	70.80	70.80	72.15	70.30
21	74.30	73.50	73.30	71.15	70.65	70.55	71.25	71.25	70.80	70.90	71.90	70.30
22	74.40	73.50	73.15	71.15	70.65	70.50	71.15	71.15	70.75	70.65	71.55	70.30
23	74.50	73.50	73.15	71.05	70.65	70.40	71.25	71.25	70.65	70.65	71.25	70.30
24	74.55	73.40	73.05	71.05	70.75	70.40	71.05	71.15	70.90	70.65	71.05	70.30
25	74.55	73.40	72.90	71.00	70.75	70.50	71.05	71.15	71.05	70.55	71.00	70.30
26	74.75	73.40	72.80	71.00	70.80	70.30	71.15	71.25	71.25	70.55	71.00	70.30
27	74.90	73.25	72.65	70.75	70.75	70.30	71.05	71.25	71.05	70.55	70.90	70.30
28	75.15	73.25	72.65	70.75	70.65	70.30	70.15	71.25	70.80	70.65	70.75	70.40
29	75.15	73.15	72.50	70.80	70.65	70.30	71.15	71.25	70.65	70.75	.....	70.40
30	75.25	73.15	72.40	70.80	70.65	70.25	71.15	71.30	70.65	70.80	.....	70.50
31	.....	73.25	.....	70.80	70.65	.....	71.05	.....	70.65	71.05	.....	70.55

ELEVATIONS of Ottawa River at Foot of Ste Annes Canal, during the year 1910-11.

TABLE No. 31.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	69.90	70.90	69.90	69.15	68.20	67.95	67.65	68.05	67.15	67.95	68.20	67.95
2	69.95	70.80	69.80	69.05	68.30	67.95	67.65	68.05	67.20	67 95	68.30	67.95
3	70.05	70.80	69.90	69.05	68.20	67.90	67.80	68.05	67.20	68.05	68.40	68.20
4	70.05	70.95	69.90	68.95	68.30	68.05	67.70	67 95	67.20	68.15	68.40	68.20
5	70.15	71.05	69.80	68.95	68.30	68.05	67.80	67.80	67.20	68.15	68.40	67.80
6	70.15	70.95	69.90	68.80	68.30	68.05	67.80	67.65	67.30	68.20	68.40	67.45
7	70.20	70.80	70.05	68.80	68.30	68.05	67.95	67.65	67.20	68.40	68.40	67.40
8	70.20	70.90	70.15	68.80	68.30	68.15	67.95	67.70	67.30	68.40	68.40	67.40
9	70.30	70.80	70.20	68.80	68.20	68.15	67.95	67.80	67.40	68.45	68.45	67.30
10	70.40	70.70	70.15	68.80	68.40	68.15	68.05	67.95	67.80	68.65	68.70	67.15
11	70.45	70.80	70.15	68.70	68.30	68.15	67.95	67.90	67.95	68.70	68.40	67.15
12	70.45	70.65	70.05	68 70	68.30	68.20	68.05	68.05	68.05	68.90	68.20	67.15
13	70.40	70.45	70.05	68.55	68.20	68.15	67.95	68.05	68.15	68.95	67.95	67.15
14	70 30	70.40	70.15	68.65	68.15	68.15	68.05	68.05	68.45	69.05	67.95	67.20
15	70.30	70.20	70.15	68.55	68.20	67.90	67.95	68.05	68.70	68.90	67.90	67.20
16	70.30	70.15	70.05	68.55	68.20	67.90	67.90	67.80	68.70	68.70	67.95	67.15
17	70.30	70.15	69.95	68.45	68.15	67.90	67.90	67.70	68.80	68.55	68.05	67.05
18	70.20	70.05	69.90	68.40	68.05	67.90	67.95	67.70	68.90	68.55	68.05	67.15
19	70.20	69.95	69.90	68.40	68.15	67.80	67.95	67.70	68.90	68.65	68.20	67.15
20	70.20	69.95	69.80	68.30	68.05	67.80	67.95	67.70	68.70	68.65	68.15	67.30
21	70.65	69.95	69.70	68.40	68.05	67.70	67.90	67.70	68.70	68.65	68.30	67.30
22	70.55	69.90	69.45	68.40	68.15	67.55	67.80	67.70	68.65	68.15	68.40	67.40
23	70.45	69.90	69.65	68.30	68.15	67.70	67.70	67.80	68.55	68.20	68.55	67.45
24	70.45	69.80	69.65	68.40	67.95	67.45	67.80	67.70	68.80	68.55	68.70	67.45
25	70.40	69.90	69.45	68.30	68.15	67.45	67.90	67.80	68.95	68.30	68.45	67.55
26	70.45	69.90	69.40	68.45	67.95	67.65	67.90	67.80	69.15	68.30	68.05	67.55
27	70.65	69.80	69.40	68.40	68.15	67.65	67.95	67.80	68.95	68.15	67.95	67.70
28	70.70	69.80	69.30	68.40	68.15	67.60	67.90	67.80	68.65	68.15	67.95	67.7 0
29	70.80	69.80	69.30	68.30	68.15	67.65	67.95	67.65	68.55	68.20	.....	67.95
30	70.80	69.80	69.15	68.20	68.05	67.60	67.95	67.45	68.55	68.20	.....	68.15
31	.....	69.90	.....	68.20	67.95	.....	67.95	.....	68.55	68.30	.....	68.30

ELEVATIONS of River St. Lawrence at Head of Lachine Canal, during the year 1910-11.

TABLE No. 32.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	69.50	70.35	69.50	68.75	68.15	67.25	67.50	67.65	67.35	67.60	67.40	66.65
2	69.60	70.35	69.60	68.65	68.00	67.35	67.50	67.65	67.35	67.65	67.35	66.85
3	69.65	70.40	69.65	68.60	68.00	67.35	67.50	67.60	67.65	67.85	67.25	66.85
4	69.85	70.40	69.60	68.60	68.00	67.35	67.50	67.40	67.65	67.50	67.25	66.90
5	69.90	70.50	69.40	68.60	67.90	67.35	67.60	67.35	67.00	67.10	67.25	66.40
6	70.00	70.60	69.40	68.50	67.90	67.50	67.60	67.50	67.00	67.15	67.40	66.40
7	69.85	70.65	69.60	68.40	67.90	67.65	67.65	67.60	67.00	67.00	67.00	66.50
8	70.00	70.50	69.65	68.40	67.90	67.65	67.65	67.60	67.10	67.15	66.65	66.00
9	70.00	70.40	69.75	68.35	67.90	67.65	67.65	67.60	67.15	67.15	66.90	66.00
10	70.00	70.35	69.75	68.25	67.85	67.50	67.85	67.50	67.25	67.15	67.35	65.90
11	70.15	70.25	69.75	68.25	68.00	67.35	67.85	67.65	67.75	67.65	67.40	65.90
12	70.15	70.25	69.65	68.15	68.00	67.50	67.75	67.65	67.90	67.90	66.90	66.25
13	70.00	70.25	69.65	68.15	68.00	67.35	67.85	97.65	67.90	68.15	66.65	65.90
14	70.00	70.15	69.75	68.15	67.90	67.25	67.85	67.65	68.00	68.25	66.25	65.85
15	69.85	70.15	69.65	68.15	67.85	67.00	67.75	67.65	67.85	68.25	66.35	65.85
16	69.75	69.75	69.65	68.10	67.85	67.00	67.65	67.65	67.90	67.90	66.25	65.65
17	69.60	69.60	69.65	68.10	67.85	67.00	67.60	67.60	68.00	67.60	66.50	65.65
18	69.75	69.90	60.65	68.10	67.85	67.15	67.50	67.60	68.35	67.75	67.00	66.50
19	69.75	69.75	69.65	68.00	67.85	67.15	67.50	67.40	67.65	68.25	68.40	66.35
20	69.75	69.65	69.40	68.00	67.85	67.00	67.35	67.35	68.10	68.35	67.35	66.15
21	69.75	69.65	69.35	68.10	67.85	67.00	67.15	67.35	67.60	68.65	67.60	66.10
22	69.85	69.60	69.35	68.10	67.85	67.00	67.15	67.35	67.40	68.50	67.50	66.25
23	69.85	69.60	69.25	68.15	67.85	66.90	67.50	67.50	68.85	68.40	67.50	66.10
24	69.85	69.60	69.15	68.15	67.85	67.00	67.50	67.50	68.60	68.75	67.85	66.10
25	69.90	69.60	69.15	68.10	67.85	67.00	67.50	67.50	68.75	68.75	67.65	66.40
26	69.90	69.50	69.15	68.10	67.85	67.65	67.65	67.35	68.60	67 00	67.25	66.60
27	70.10	69.50	69.00	68.15	67.85	67.65	67.60	67.35	69.40	67.25	66.35	66.15
28	70.10	69.50	68.90	68.15	67.85	67.50	67.60	67.35	69.15	67.50	66.25	66.25
29	70.35	69.50	68.85	68.15	67.85	67.50	67.60	67.35	68.10	67.65	.....	67.15
30	70.35	69.40	68.85	68.15	67.85	67.50	67.60	67.35	67.75	8 850	.....	67.50
31	.....	69.40	.....	68.15	67.85	.....	67.60	.....	67.35	6.250	.....	67.50

ELEVATIONS of River St. Lawrence at Foot of Lachine Canal, during the year 1910-11.

TABLE No. 33.

Day of the month	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	27.85	25.35	23.45	22.00	20.70	20.95	19.50	20.35	20.70	34.20	28.50	28.50
2	25.70	25.35	23.45	22.00	20.70	20.85	19.85	20.20	20.50	34.20	28.70	29.50
3	25.00	25.70	23.60	21.85	20.70	20.85	19.85	20.50	20.35	34.95	28.50	29.20
4	24.70	25.70	23.70	21.85	20.75	20.85	19.75	19.75	19.85	34.20	28.00	29.20
5	24.45	25.60	23.50	21.95	20.85	20.85	19.85	20.20	19.85	32.85	28.85	29.10
6	24.35	25.50	23.50	21.70	20.95	20.85	20.10	20.20	19.85	32.35	28.35	29.10
7	24.35	25.50	24.00	21.70	20.85	21.00	20.45	20.20	19.85	32.00	28.35	29.10
8	24.85	25.75	24.20	21.70	20.85	21.00	20.45	20.20	20.10	31.75	27.95	28.75
9	24.95	25.20	24.45	21.70	20.85	21.00	20.50	20.20	20.45	33.35	28.20	28.95
10	25.20	25.20	24.45	21.60	20.70	21.00	20.60	20.20	21.00	31.50	28.50	29.35
11	25.25	25.20	24.45	21.50	20.85	21.00	20.60	20.35	23.00	30.75	29.85	28.75
12	25.35	25.00	24.45	21.50	20.85	21.00	20.45	20.35	24.60	31.25	29.85	28.70
13	25.20	25.00	23.85	21.25	20.70	20.85	20.45	20.35	26.50	30.70	29.00	28.75
14	25.00	24.85	23.85	21.20	20.70	20.85	20.25	20.50	27.60	30.20	27.95	28.70
15	24.95	24.35	23.85	21.20	20.60	20.85	20.35	20.35	28.85	30.35	27.10	28.85
16	24.75	24.10	23.85	21.20	20.70	20.85	20.25	20.35	29.50	29.85	27.20	28.20
17	24.20	23.95	24.50	21.00	20.35	20.85	20.25	20.35	31.10	29.70	27.35	27.50
18	24.00	23.50	23.50	20.95	20.25	20.85	20.45	20.35	32.00	29.75	27.60	29.00
19	24.00	23.50	23.35	21.00	20.50	20.75	20.45	20.35	32.45	29.85	28.70	29.35
20	24.25	23.70	23.20	20.95	20.50	20.70	20.70	20.20	31.70	29.95	28.50	29.50
21	24.35	23.50	23.10	20.75	20.35	20.70	20.60	20.20	31.75	29.75	28.35	29.20
22	24.50	23.50	23.00	20.75	20.35	20.85	20.20	20.20	32.20	30.20	28.50	29.35
23	24.70	23.50	22.95	20.85	20.50	20.70	20.25	20.10	32.75	29.75	28.35	29.35
24	24.85	23.20	23.00	20.85	20.70	20.70	20.25	20.00	34.20	29.85	29.00	28.50
25	24.85	23.25	22.75	20.85	20.70	20.70	20.25	20.20	34.50	30.50	29.70	28.70
26	24.90	23.35	22.45	20.95	20.60	20.70	20.35	20.20	33.85	29.50	30.35	29.20
27	25.00	23.35	22.45	21.00	20.45	20.60	20.35	20.20	34.20	29.35	29.85	29.25
28	25.35	23.35	22.45	21.00	20.45	20.50	20.45	20.20	34.20	29.20	28.50	29.35
29	25.35	23.35	22.35	20.85	20.35	20.50	20.50	20.20	34.85	29.35	.....	29.45
30	25.00	23.35	22.00	20.75	20.25	20.50	20.35	20.70	35.75	29.60	.....	30.35
31	.....	23.35	.....	21.70	20.20	.....	20.35	.....	34.70	29.10	.....	30.70

ELEVATIONS of River St. Lawrence Lower Lock Lachine Canal, for the year 1903.—*Corrected.*

TABLE No. 34.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	38.95	33.10	32.45	29.70	24.70	23.95	24.25	23.10	22.00	21.45	21.35	19.85
2	39.00	33.45	32.45	27.95	24.45	23.85	24.10	23.20	21.95	21.60	21.35	19.85
3	38.85	33.70	32.52	27.20	24.35	23.75	24.50	23.35	21.95	21.45	21.25	19.95
4	39.10	33.95	32.45	27.70	24.35	23.60	24.75	23.45	21.95	21.45	21.25	20.10
5	38.10	33.25	33.10	27.45	24.85	23.50	24.75	22.50	21.85	21.35	21.35	20.10
6	37.45	32.85	33.25	27.20	24.85	23.30	24.70	22.50	21.75	21.50	21.45	20.10
7	37.00	32.70	33.50	26.95	24.95	23.25	24.50	22.50	21.85	21.35	21.35	20.25
8	36.85	32.70	33.25	27.20	24.95	23.20	24.50	22.50	21.85	21.45	21.20	20.45
9	36.10	32.95	36.70	27.25	24.95	23.20	24.20	22.50	21.70	21.75	21.19	20.60
10	35.75	32.25	36.20	27.10	24.95	23.25	24.00	22.70	21.45	22.10	21.00	21.20
11	35.50	32.50	36.20	27.00	24.95	23.25	24.00	22.70	21.60	22.45	21.00	21.00
12	36.00	34.20	35.85	26.75	25.20	23.60	23.85	22.70	21.60	22.85	20.95	20.95
13	35.25	33.35	36.25	26.70	25.00	23.50	23.75	22.70	21.45	22.70	20.85	20.95
14	34.85	32.95	36.50	26.50	25.45	24.00	23.60	22.70	21.45	22.50	20.75	21.75
15	35.70	32.20	36.45	26.50	25.25	24.00	23.50	22.75	21.50	22.20	20.75	23.35
16	35.95	32.95	36.25	26.50	25.35	24.35	23.45	22.60	21.45	22.10	20.75	25.50
17	36.25	33.45	36.35	26.45	25.10	24.20	23.25	22.60	21.35	21.75	20.70	28.20
18	35.95	33.25	36.45	26.20	25.10	24.10	23.10	22.50	21.35	22.00	20.60	31.00
19	34.25	31.25	36.35	26.10	25.10	23.70	22.95	22.45	21.45	22.25	20.45	32.45
20	33.45	31.25	37.25	25.95	25.00	24.00	22.95	22.45	21.45	22.35	20.45	34.45
21	33.70	31.50	40.20	25.95	24.95	23.95	22.95	22.45	21.50	22.50	20.45	38.00
22	34.00	32.35	42.25	25.85	25.00	23.95	22.95	22.45	21.70	22.60	20.25	38.70
23	34.25	31.70	42.25	25.60	24.85	24.00	23.00	22.45	21.60	22.50	20.00	36.75
24	33.75	31.50	48.85	25.60	24.75	24.00	23.20	22.45	21.70	22.35	19.95	37.70
25	33.00	32.45	47.35	24.85	24.50	24.20	23.10	22.45	21.75	22.25	19.85	38.60
26	32.25	32.00	45.00	24.75	24.45	24.35	23.20	22.45	21.70	22.20	19.75	37.95
27	33.50	31.70	39.35	24.75	24.45	24.50	23.20	22.45	21.70	22.00	19.85	36.85
28	33.50	32.00	37.35	24.50	24.35	24.45	23.20	22.20	21.75	21.75	20.20	37.00
29	34.70	.....	34.85	24.50	24.20	24.45	23.00	21.95	21.75	21.50	20.50	36.70
30	34.70	.....	33.00	24.50	24.20	24.35	23.10	21.85	21.85	21.45	20.70	36.70
31	34.00	.....	31.10	.....	23.95	.....	23.10	21.75	.....	21.35	.....	37.20

ELEVATIONS of River St. Lawrence Lower Lock Lachine Canal for the year 1904.—*Corrected.*

TABLE No. 35.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	36.50	33.60	31.45	35.85	27.85	28.10	25.35	23.35	21.75	23.25	23.25	21.50
2	36.45	33.00	31.50	36.00	27.85	28.20	25.35	23.45	22.85	23.25	23.00	21.50
3	36.25	32.35	32.60	36.75	28.20	28.45	25.25	23.45	23.00	23.25	22.95	21.35
4	35.60	31.85	31.35	37.10	28.35	27.75	25.10	23.20	23.25	23.25	23.10	21.20
5	35.10	31.10	30.70	37.45	29.35	28.75	24.85	23.00	23.45	23.20	23.10	21.00
6	35.20	31.60	30.85	39.70	28.95	28.95	24.95	23.00	23.60	23.10	22.85	21.20
7	35.70	31.60	32.45	39.70	29.20	28.95	24.85	22.85	23.70	23.00	22.75	21.25
8	35.35	31.45	33.10	39.70	29.20	29.00	24.60	22.85	22.85	22.95	22.85	21.35
9	35.75	31.60	33.00	41.85	29.20	29.00	24.50	22.85	22.95	23.00	22.85	22.00
10	36.00	30.75	32.50	46.25	29.45	28.75	24.35	22.75	22.75	22.95	22.75	22.45
11	35.20	30.45	32.35	45.25	29.35	28.75	24.35	22.70	22.35	23.45	22.50	23.25
12	34.75	31.20	32.60	45.20	29.35	29.60	24.35	22.85	22.50	23.70	22.20	26.10
13	34.45	31.85	32.35	44.85	29.35	29.45	24.45	22.75	22.50	23.20	22.20	28.60
14	34.85	32.45	32.50	44.75	29.20	28.35	24.50	22.75	22.25	23.10	21.70	31.20
15	34.70	32.50	33.20	43.35	29.00	28.20	24.50	22.85	22.35	23.10	22.20	32.35
16	35.10	32.20	33.00	42.35	29.00	28.85	24.50	22.85	22.25	22.95	22.20	35.35
17	34.25	31.45	32.85	42.00	29.00	27.45	24.50	22.85	22.10	22.85	21.95	36.95
18	33.75	30.35	32.35	39.45	29.35	27.35	24.50	22.85	22.25	23.00	21.95	36.60
19	34.70	31.25	32.70	38.85	29.35	26.70	24.45	22.70	22.25	23.00	21.60	37.20
20	33.70	31.50	33.00	36.75	29.25	26.95	24.35	22.70	22.10	22.95	21.60	37.85
21	33.00	32.50	32.35	36.00	29.20	26.70	24.25	22.75	22.00	23.10	21.60	37.20
22	32.95	32.95	32.50	34.25	28.95	26.35	24.20	22.75	21.85	23.60	21.60	37.20
23	32.70	32.20	32.85	32.45	28.85	26.20	24.00	22.95	21.75	23.70	21.60	36.75
24	33.00	31.85	32.85	30.75	27.70	25.95	23.75	22.75	21.75	24.25	21.85	36.45
25	33.00	31.85	33.45	28.70	27.70	26.00	23.70	22.75	22.45	23.70	21.85	36.00
26	33.10	30.70	34.20	28.35	28.00	25.95	23.70	22.75	22.85	23.70	21.50	34.50
27	32.45	31.10	34.85	27.70	27.95	25.95	23.60	22.75	23.10	24.25	21.45	33.95
28	31.10	31.20	36.20	27.00	28.20	25.60	23.50	22.70	22.95	23.60	21.45	33.95
29	31.20	31.25	36.25	26.95	28.00	25.50	23.50	22.70	22.70	23.45	21.25	33.95
30	32.20	.....	36.00	27.10	28.10	25.45	23.50	22.60	22.95	23.50	21.25	33.25
31	.....	.....	.....	.....	28.25	.....	23.35	22.60	.....	23.25	.....	33.25

ELEVATIONS of River St. Lawrence Lower Lock Lachine Canal, for the year 1905.—*Corrected.*

TABLE No. 36.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	35.10	31.60	31.50	36.45	22.10	23.95	22.95	22.45	21.60	21.50	21.50	21.10
2	35.25	31.95	31.00	37.60	22.25	23.85	22.75	22.50	21.70	21.50	21.35	20.95
3	34.50	32.45	31.10	37.10	22.45	23.75	22.95	22.60	21.70	21.50	21.35	20.95
4	33.25	30.45	31.45	37.25	22.75	23.70	23.20	22.50	21.75	21.50	21.35	21.35
5	32.25	30.50	31.45	36.95	22.95	23.70	23.25	22.50	21.95	21.50	21.35	21.10
6	32.00	30.50	31.85	39.85	23.10	23.95	23.25	22.25	21.95	21.45	21.35	21.20
7	32.20	30.85	31.20	38.75	23.10	23.60	23.20	22.45	22.00	21.25	21.25	21.00
8	33.25	30.50	31.85	38.95	23.50	23.35	23.20	22.45	21.95	20.85	21.25	21.10
9	32.20	31.50	31.45	39.75	23.70	23.35	22.85	22.35	21.70	21.10	21.35	21.00
10	32.95	31.45	31.70	38.85	24.10	23.25	22.75	22.35	21.50	21.10	21.45	20.95
11	32.35	31.35	31.35	38.00	24.35	23.25	22.70	22.25	21.50	20.85	21.35	20.95
12	32.35	31.45	31.20	38.25	24.70	23.35	22.50	22.10	21.50	21.20	21.35	21.45
13	32.50	30.50	31.50	36.45	24.70	23.35	22.35	22.10	21.70	21.20	21.45	21.85
14	32.35	30.25	31.75	35.10	24.70	23.35	22.35	22.10	21.50	21.20	21.45	22.50
15	32.45	30.00	31.70	34.50	24.85	23.45	22.50	21.95	21.35	21.20	20.95	23.00
16	33.25	30.85	31.60	30.60	24.95	23.35	22.50	21.95	21.25	20.95	21.20	23.95
17	33.00	30.70	31.85	29.10	25.35	23.45	22.50	21.85	21.35	21.20	21.35	25.50
18	33.00	30.95	32.00	27.20	25.45	23.60	22.50	21.85	21.45	21.20	21.20	26.50
19	33.25	29.70	32.00	25.70	25.35	22.85	22.50	21.85	21.50	21.20	20.95	27.35
20	33.50	29.85	31.50	24.70	25.45	23.85	22.70	21.85	21.50	21.45	20.85	27.50
21	33.10	31.20	31.45	24.35	25.35	23.85	22.70	21.85	21.50	21.35	20.70	28.10
22	33.10	30.85	31.70	23.70	25.35	23.85	22.60	21.85	21.50	21.35	20.70	28.50
23	32.50	29.95	31.85	23.25	25.45	23.85	22.70	21.85	21.50	21.35	20.85	29.00
24	32.00	30.50	31.85	22.70	25.00	23.70	22.25	21.75	21.45	21.35	20.95	29.25
25	31.25	31.10	31.85	22.70	24.95	23.25	22.35	21.70	21.45	21.35	21.02	29.35
26	31.00	31.45	32.00	22.35	24.70	23.35	22.35	21.60	21.50	21.35	21.02	29.45
27	30.70	31.45	32.70	22.50	24.60	23.25	22.25	21.50	21.35	21.35	21.20	29.60
28	31.75	31.25	33.75	22.35	24.45	23.20	22.20	21.50	21.35	21.45	21.20	29.10
29	32.10	.....	34.00	21.85	24.25	23.00	22.20	21.45	21.45	21.45	21.10	28.25
30	31.45	.....	34.45	22.00	24.25	22.95	22.20	21.45	21.60	21.45	21.35	27.50
31	31.85	.....	35.00	.....	24.20	.....	22.35	21.60	.....	21.50	.....	26.70

ELEVATIONS of River St. Lawrence Lower Lock Lachine Canal for the year 1906.—*Corrected.*

TABLE No. 37.

Date of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	26.70	37.35	33.35	33.35	23.95	24.35	23.70	21.35	20.35	19.75	20.20	20.20
2	26.00	37.20	33.50	33.45	23.95	24.35	23.50	21.35	20.10	19.70	20.10	20.10
3	25.45	35.95	33.50	33.45	24.00	24.35	23.50	21.25	20.35	19.85	20.20	20.35
4	26.10	35.60	33.45	33.60	24.00	24.25	23.50	21.35	20.50	19.85	20.10	20.50
5	27.20	37.10	33.25	33.35	24.00	24.10	23.50	21.35	20.45	19.85	20.00	20.75
6	27.85	36.50	33.50	33.60	24.10	24.45	23.50	21.35	20.25	19.85	19.85	22.20
7	29.00	36.35	33.35	32.85	24.25	24.45	23.45	21.35	20.35	19.95	19.75	22.70
8	29.50	35.95	33.45	32.50	24.45	24.45	23.45	21.35	20.35	19.85	19.75	24.60
9	30.25	35.35	33.25	31.25	24.45	25.25	23.45	21.35	20.20	19.10	19.70	27.70
10	32.25	35.10	33.10	30.95	24.70	25.45	22.85	21.20	20.35	20.00	19.70	30.50
11	32.70	35.35	32.20	31.00	24.95	25.75	22.85	21.00	20.20	20.10	19.70	33.50
12	34.00	35.70	31.70	26.85	24.95	25.45	22.75	20.95	20.00	19.75	20.75	34.00
13	35.25	35.95	32.35	26.45	25.10	25.20	22.75	20.85	19.95	19.70	20.20	34.95
14	34.95	36.20	32.45	25.35	25.50	24.75	22.60	21.25	20.00	19.60	20.00	34.10
15	35.45	35.85	32.45	24.75	25.50	24.75	22.20	20.70	20.00	19.75	20.00	34.10
16	38.60	34.70	32.45	24.85	25.50	24.70	22.10	20.75	19.85	21.10	20.35	37.35
17	38.25	34.50	32.45	25.60	25.50	24.50	22.00	20.75	19.70	20.00	20.20	37.00
18	37.50	35.10	32.45	25.60	25.45	24.50	21.95	20.60	19.85	19.85	20.00	35.60
19	37.20	35.35	32.35	25.50	25.35	24.35	21.95	20.60	19.95	19.75	19.95	35.00
20	37.50	35.20	32.35	25.45	25.25	24.35	21.85	20.60	19.95	20.10	20.20	34.95
21	37.85	35.20	32.35	25.45	25.45	24.20	21.85	20.60	19.95	20.20	20.35	34.60
22	38.10	35.10	32.35	25.45	25.50	24.20	21.75	20.85	19.95	20.20	20.10	34.10
23	37.20	35.10	32.35	23.95	25.35	24.45	21.70	20.85	19.95	20.20	20.25	34.20
24	36.60	35.10	32.35	23.95	25.35	24.50	21.70	21.10	20.00	20.20	20.35	33.25
25	36.50	34.70	32.35	24.10	25.35	24.50	21.70	21.00	19.85	19.95	20.20	33.25
26	37.10	34.70	32.35	24.10	25.25	24.35	21.70	20.45	19.70	19.95	20.20	33.35
27	37.00	34.00	31.35	24.10	25.20	24.20	21.60	20.45	19.75	20.00	20.75	32.85
28	36.60	33.85	31.75	24.10	25.10	24.10	21.60	20.45	19.75	20.00	20.45	33.70
29	34.75	.....	32.95	23.95	24.95	24.10	21.35	20.35	19.70	20.35	20.45	33.25
30	36.70	.....	33.20	23.95	24.75	23.95	21.35	20.20	19.75	20.25	20.25	33.70
31	38.70	.....	33.35	.....	24.50	.....	21.20	20.20	.....	.....	.....	33.60

ELEVATIONS of River St. Lawrence Lower Lock Lachine Canal for the year 1907.—*Corrected.*

TABLE No. 38.

Day of the month	Jan.	Feb	Mar.	Apr	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	33.50	31.00	31.70	36.50	25.60	25.95	24.50	22.95	20.95	21.45	21.45	21.50
2	33.20	31.00	31.95	36.70	26.20	25.70	24.35	22.70	20.85	21.45	21.20	21.50
3	32.50	31.20	32.75	37.50	26.25	25.60	24.50	22.50	21.20	21.50	21.35	21.60
4	33.00	30.45	32.75	36.35	26.50	25.50	24.35	22.50	21.35	21.50	21.75	21.50
5	33.75	30.20	32.85	36.00	26.70	25.25	24.25	22.50	21.20	21.50	21.95	21.35
6	33.60	30.60	32.60	35.50	26.70	25.50	24.10	22.35	21.10	21.50	22.10	21.35
7	33.20	30.25	32.00	35.25	26.45	25.50	23.95	22.35	21.10	21.60	24.00	21.25
8	32.85	30.75	32.00	35.00	26.35	25.50	23.85	22.25	21.25	21.95	23.70	21.35
9	32.70	31.70	32.20	34.95	26.00	25.50	23.85	22.35	21.35	21.95	23.85	21.20
10	31.85	31.95	32.20	35.45	25.60	25.60	23.75	22.25	21.20	21.95	23.85	21.35
11	32.50	32.00	32.45	34.70	25.60	25.50	23.75	22.20	21.35	22.10	23.85	22.10
12	32.50	31.25	32.35	34.45	25.60	25.25	23.70	22.00	21.20	22.25	23.70	22.50
13	32.50	30.35	32.70	34.60	25.25	25.20	23.60	22.00	21.25	22.20	23.35	22.20
14	32.20	30.75	32.35	35.25	25.25	25.00	23.45	22.00	21.20	22.10	23.25	22.00
15	32.20	31.60	32.20	36.45	24.95	25.00	23.35	21.85	21.00	22.00	23.00	23.35
16	30.50	31.70	32.20	35.75	24.85	25.00	23.20	21.70	21.20	21.85	22.85	23.10
17	30.50	32.70	32.10	35.25	24.95	24.85	23.20	21.60	21.25	21.75	22.70	23.10
18	30.25	31.50	31.70	35.00	25.00	24.75	23.10	21.70	21.20	21.85	22.45	23.00
19	29.25	31.10	32.35	33.10	25.20	24.85	22.95	21.60	21.00	21.70	22.45	22.95
20	29.25	31.00	32.85	31.75	25.35	24.70	22.85	21.45	21.10	21.70	22.45	22.75
21	31.45	31.60	32.95	30.70	25.70	24.50	22.75	21.50	21.20	21.70	22.45	22.85
22	30.75	31.00	32.85	30.10	25.95	24.35	22.85	21.35	21.20	21.70	22.10	22.45
23	30.75	30.75	32.85	29.25	26.20	24.20	22.85	21.50	21.35	21.70	22.20	22.45
24	30.20	30.95	33.25	28.70	26.35	24.00	22.85	21.00	21.35	21.75	21.00	22.35
25	29.85	32.20	33.25	27.50	26.45	24.20	22.85	21.35	21.50	21.60	22.25	22.35
26	29.70	31.45	33.25	26.95	26.35	24.45	22.85	21.50	21.50	21.60	22.00	22.35
27	29.95	32.25	33.85	26.20	26.25	24.50	23.00	21.45	21.50	21.35	21.00	22.35
28	29.85	31.75	34.20	25.35	26.20	24.45	22.85	21.35	21.50	21.70	21.20	22.35
29	30.50	.....	34.75	24.75	26.35	24.45	23.00	21.25	21.45	21.75	21.60	22.75
30	31.10	.....	35.60	25.00	26.35	24.70	22.95	21.20	21.25	21.60	21.70	23.20
31	31.10	.....	36.20	.....	26.25	.....	22.95	.....	.....	21.60	.....	23.35

ELEVATIONS of River St. Lawrence Lower Lock Lachine Canal for the year 1908.—*Corrected.*

TABLE No. 39.

Date of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	23.25	33.70	34.10	36.25	28.20	30.00	25.00	22.95	21.70	20.75	19.85	19.70
2	23.45	34.00	34.70	36.45	28.60	29.85	24.85	22.85	21.60	20.95	19.70	19.85
3	23.45	33.35	34.60	36.25	29.60	29.60	24.60	22.70	21.70	20 85	19.75	19.70
4	23.25	34.10	34.50	35.75	29.70	29.50	24.45	22.60	22.50	20.70	19.95	19.45
5	23.70	33.95	33.70	35.75	29.85	29.45	24.20	22.50	21.50	20.50	19.85	19.75
6	24.00	33.95	34.35	36.25	29 95	29.20	24.20	22.50	21.45	20.45	19.75	19.70
7	24.45	33.95	34.50	43.25	29.75	28.95	24.20	22.50	21.45	20.50	19.70	20.00
8	25.00	33·60	34.20	42.20	30.00	28.70	24.00	22.70	21.50	20.50	19.95	20.25
9	25.10	32.70	33.85	43.50	30.35	28.25	23.95	22.45	21.35	20.50	20.20	20.50
10	24.75	32.75	33.85	43.20	30.75	28.10	23.95	22.45	21.35	20.50	20.25	22.20
11	25.85	33.85	34.70	42.60	30.85	28.00	23.85	22.60	21.35	20.50	20.20	23.10
12	28.20	34.50	35.35	42.50	31.00	27.75	23.70	22.60	21.35	20.60	19.95	23 95
13	29.75	34.00	34.85	43.00	31.20	27.45	23.85	22.50	21.50	20.50	19.85	25.20
14	31.25	34.85	35.45	42.35	31.35	27.35	23.70	22.60	21.50	20.35	19.85	25.20
15	32.35	34.85	35.35	41.20	31.25	27.10	23.85	22.50	21.45	20.35	19.70	25.90
16	34.50	34.50	33.85	41.20	31.20	27.10	23.85	22.60	21.25	20.25	19.70	25.70
17	34.50	34.10	33.35	38.95	31.10	26.95	23.95	22.50	21.20	20.25	19.70	25.44
18	36.75	34.10	33.45	38.00	31.10	26.70	23.95	22.50	21.00	20.10	19.85	25.20
19	37.95	33.95	33.70	40.20	31.10	26.50	23.95	22.50	21.00	20.20	19.70	24.95
20	36.00	33.95	33.70	38.35	31.00	26.25	23.70	22.45	20.85	19.95	19.70	26.20
21	36.75	33.70	33.50	32.75	31.10	26.25	23.70	22.25	20.75	19.75	19.50	27.10
22	38.75	34.00	33.60	31.70	30.95	26.20	23.95	21.95	20.75	19.70	19.50	27.70
23	37.20	33.75	33.75	30.60	30.70	25.95	23.75	22.00	20.75	19.70	19.50	29.70
24	35.50	34.00	33.85	29.70	30 50	25.75	23.75	22.00	20.85	19.85	19.60	29.75
25	35.35	34.10	33.25	28.00	30.35	25.70	23.70	22.00	20.85	20.00	19.75	32.85
26	34.85	34.25	34.25	27.20	30.10	25.70	23.70	22.00	20.75	20.00	19.60	32.60
27	35.50	34.50	34.50	27.00	29.95	25.45	23.45	21.95	20.70	20.10	19.60	32.25
28	34.35	35.85	35.10	27.00	30.00	25.25	23.20	21.85	20.70	20.20	19.50	32.85
29	34.50	34.75	35.60	27.27	29.85	25.20	23.10	21.75	20.95	20.20	19.75	34.70
30	34.75	.....	36.25	27.60	29.85	25.20	23.10	21.75	20.85	20.20	19.75	35.60
31	34.75	.....	36.45	.....	29.85	.....	23.10	21.70	.....	20.10	.....	35.70

ELEVATIONS of River St. Lawrence Lower Lock Lachine Canal for the year 1909.—*Corrected.*

TABLE No. 40.

Day of the month.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct	Nov.	Dec.
1	35.50	30.45	30.75	32.50	26.20	30.00	24.00	23.35	21.85	22.00	20.70	20.85
2	35.70	30.45	30.70	32.70	26.75	30.00	24.00	23.35	21.85	22.10	20.70	21.00
3	37.20	29.85	30.70	34.50	27.25	29.70	24.00	23.50	21.85	22.10	20.60	20.95
4	37.85	29.70	30.45	34.35	27.60	29.35	24.00	23.50	21.85	22.10	20.60	20.50
5	36.60	31.10	30.35	34.35	27.60	29.10	23.95	23.50	21.85	22.10	20.50	20.20
6	35.20	32.00	30.70	36.85	27.50	28.70	23.85	23.35	21.85	21.60	20.45	20.20
7	32.00	31.95	30.70	41.45	27.35	28.70	23.85	23.25	21.75	21.50	20.10	20.20
8	32.75	31.95	30.70	42.70	27.20	28.25	23.75	23.20	21.60	21.35	20.00	20.20
9	32.60	32.15	31.20	42.45	27.10	27.85	23.70	23.20	21.45	21.35	20.25	20.20
10	32.70	30.50	30.70	42.45	27.25	27.50	23.45	23.00	21.45	21.20	20.10	20.45
11	33.85	30.25	30.70	41.35	28.00	27.10	23.10	22.85	21.50	21.10	20.00	20.45
12	33.50	30.45	31.00	39.95	27.85	26.85	23.10	22.50	21.50	21.10	20.10	20.25
13	33.35	31.70	30.20	42.00	29.35	26.50	23.00	22 35	21.50	21.00	20.35	20.25
14	32.20	31.00	30.70	37.85	29.50	26.50	23.00	22.10	31.50	21.10	20.25	20.85
15	32.00	30.70	30.70	35.36	29.70	26.25	22.95	22.10	21.50	21.10	20.10	20.85
16	31.35	30.95	30.70	36.00	29.70	26.10	22.95	22.35	21.50	21.20	20.20	21.00
17	31.45	29.75	30.85	30.45	29.85	25.85	22.95	22.50	21.45	21.00	19.95	20.85
18	31.35	29.70	31.25	28.85	30.45	25.75	22.85	22.50	21.35	20.85	20.45	20.70
19	30.35	30.20	30.85	28.20	30.70	25.45	22.95	22.50	21.35	20.85	20.35	20.50
20	31.45	30.95	30.70	28.20	30.75	25.10	22.85	22.50	21.35	20.75	20.20	20.70
21	31.85	30.35	31.25	27.00	30.75	25.25	22.85	22.50	21.35	20.70	20.35	21.00
22	33.50	30.10	30.50	27.35	30.70	25.35	22.70	22.20	21.35	20.60	20.35	21.45
23	33.00	30.85	30 70	26.45	30.60	25.25	22.70	21.95	21.35	20.70	20.70	21.75
24	30.75	31.35	30 70	26.45	30.60	25.20	22.70	21.95	21.35	20.75	21.10	21 95
25	31.50	31.35	30.70	27.10	30.70	25.00	22.70	21.85	21.35	20.60	21.75	23.25
26	32.70	31.35	31.35	27.10	30.45	24.85	22.70	21.85	21.35	20.50	20.95	22.70
27	31.85	31.35	31.35	26.70	30.25	24.50	22 70	21.85	21.35	20.60	20.85	23.60
28	32.50	31.35	31.50	26.50	30.20	24.50	22.70	21.85	21.35	20.70	20.75	23.95
29	31.50	.....	31.70	26.50	30.25	24.45	22.70	21.75	21.35	20.85	20.85	25.10
30	31 00	.....	32 00	26.60	30.25	24.20	22.70	21.75	21.35	20.85	21.00	26.20
31	30.85	.....	32.35	.....	30.25	.....	23.20	21.75	.....	20.70	.....	27.50

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal. Valleyfield, Que., during the year 1890.

TABLE No. 41.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	152.8	153.5	153.4	153.1	154.1	153.7	153.6	153.5	153.2	152.9	152.9	153.0
2	152.8	153.5	153.7	153.3	154.1	154.0	153.5	153.4	153.0	153.0	152.8	153.1
3	153.0	153.4	153.3	153.3	154.0	153.8	153.7	153.4	153.0	152.9	152.7	152.8
4	152.8	153.3	153.2	153.4	154.0	153.6	153.7	153.4	153.0	153.0	152.7	153.0
5	152.9	153.3	153.1	153.4	154.0	153.5	153.8	153.4	153.0	153.3	153.4	153.0
6	153.0	153.1	153.1	153.5	154.0	153.6	153.7	153.5	153.0	152.9	153.1	152.7
7	153.1	152.6	153.0	153.5	154.0	154.1	153.6	153.4	153.0	152.5	152.7	153.1
8	153.4	152.5	153.0	153.3	154.0	154.0	154.0	153.4	153.0	153.0	153.1	152.7
9	153.4	152.6	152.8	153.5	154.0	153.9	153.8	153.3	152.9	152.9	152.8	152.8
10	152.7	152.6	152.5	153.8	154.0	154.0	153.5	153.4	152.7	153.0	152.9	152.8
11	152.8	152.7	152.4	153.8	154.0	153.9	153.5	153.2	152.7	153.0	152.9	152.9
12	153.0	152.7	152.5	153.6	154.0	153.7	153.7	153.1	152.7	153.0	152.9	153.0
13	152.9	152.8	152.8	153.5	153.9	153.6	153.5	153.1	152.4	152.8	153.0	153.0
14	153.9	152.8	153.0	153.4	154.0	153.6	153.5	153.2	153.5	152.5	153.0	153.0
15	153.5	152.7	153.1	153.5	154.0	153.8	153.7	153.1	153.5	153.0	152.9	153.0
16	153.4	152.7	153.3	153.6	153.9	153.9	153.6	153.1	153.4	152.8	153.1	152.9
17	153.6	152.7	153.5	153.6	154.6	153.7	153.7	153.2	153.4	153.3	152.9	152.9
18	153.6	152.6	153.3	153.5	154.2	153.6	153.6	153.2	153.4	153.0	153.1	153.0
19	153.8	152.5	153.1	153.3	154.0	153.5	153.5	153.0	153.3	152.8	153.3	153.4
20	154.0	152.7	153.0	153.2	154.1	153.7	153.5	153.0	153.5	152.8	153.3	153.6
21	154.1	152.8	152.9	153.2	154.2	153.7	133.5	152.9	153.5	152.8	153.3	153.5
22	154.5	153.3	153.0	153.2	154.3	155.9	153.5	153.1	153.5	152.8	153.1	153.5
23	154.6	153.5	153.0	153.2	154.2	153.8	153.4	152.9	153.2	152.6	153.1	153.6
24	154.5	153.1	153.0	153.3	154.0	153.7	153.4	153.0	153.3	152.5	152.9	153.4
25	154.2	152.6	152.9	153.1	153.8	153.6	153.4	153.0	153.2	152.4	152.9	153.5
26	153.3	152.5	153.0	153.2	153.8	153.5	153.5	153.0	153.2	152.8	152.9	153.0
27	153.3	152.6	153.4	153.3	153.8	153.6	153.5	153.0	153.0	152.7	152.9	153.3
28	153.2	152.6	153.3	153.1	154.0	153.7	153.5	153.0	153.0	153.0	152.9	153.4
29	153.3	.....	152.7	153.1	153.9	153.5	153.4	153.0	153.0	152.8	152.9	153.3
30	153.2	.....	152.7	153.4	153.8	153.6	153.5	153.2	153.1	152.8	153.0	153.3
31	153.5	.....	153.0	.....	153.7	.....	153.8	153.0	.....	152.7	.....	153.3

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1891.

TABLE No. 42.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	153.1	152.5	153.2	153.4	153.6	153.1	152.7	152.9	152.5	152.1	152.1	151.7
2	153.0	152.7	153.0	153.3	153.6	153.0	152.8	152.8	152.5	152.1	152.0	151.7
3	153.0	152.7	153.0	153.3	153.7	153.0	152.8	152.8	152.5	152.1	151.8	151.5
4	153.1	152.9	152.9	153.5	154.0	153.0	152.8	152.6	152.3	152.2	151.6	151.4
5	153.1	152.9	152.9	153.5	154.0	153.0	152.9	152.6	152.3	152.1	151.4	152.0
6	152.9	153.0	153.0	153.5	154.0	153.0	153.0	152.7	152.3	152.0	151.3	152.0
7	152.9	153.0	153.0	153.5	153.7	153.0	153.0	152.7	152.3	152.0	151.3	152.0
8	152.8	152.8	152.7	153.5	154.2	153.0	153.0	152.7	152.4	150.0	151.2	151.9
9	152.8	152.7	152.7	153.5	153.6	153.0	152.9	152.7	152.5	150.0	151.3	152.1
10	152.6	153.0	152.9	153.5	153.7	153.0	152.9	152.6	152.5	150.0	151.3	152.1
11	152.6	153.1	153.1	153.4	153.7	153.0	152.9	152.6	152.5	151.9	151.5	151.9
12	152.5	153.1	153.3	153.5	153.6	153.0	152.8	152.6	152.4	151.6	151.5	151.8
13	152.9	153.0	153.4	153.6	153.6	153.0	153.0	152.6	152.4	151.5	151.6	151.8
14	153.0	153.2	153.6	153.7	153.5	153.0	153.0	152.5	152.4	151.5	151.6	151.6
15	153.1	153.0	153.6	153.5	153.5	153.0	153.0	152.5	152.4	151.9	151.5	151.8
16	153.3	152.9	153.6	153.8	153.3	153.0	153.0	152.5	152.3	152.0	151.5	151.6
17	153.4	153.0	153.7	153.9	153.3	152.8	153.0	152.5	152.2	152.0	151.8	151.8
18	153.5	153.1	153.5	154.0	153.4	152.8	153.0	152.5	152.3	152.0	152.0	151.9
19	153.2	153.1	153.2	153.9	153.3	152.9	153.0	152.5	152.3	152.0	151.7	151.9
20	153.1	153.0	153.1	153.9	153.2	152.9	153.0	152.5	152.3	152.0	151.8	151.7
21	153.0	153.0	153.1	153.9	153.3	152.9	152.9	152.5	152.3	151.6	151.6	151.6
22	153.0	153.0	153.2	153.8	153.3	152.8	152.8	152.5	152.3	151.8	151.5	151.5
23	153.0	153.0	153.3	153.8	153.3	153.0	152.8	152.4	152.3	152.0	151.5	151.6
24	152.6	152.8	153.7	153.8	153.3	153.0	152.9	152.5	152.3	152.0	152.3	151.6
25	152.5	152.8	153.9	153.7	153.2	153.0	152.9	152.6	152.3	151.8	152.2	151.6
26	152.5	152.9	153.7	153.7	153.1	153.0	152.9	152.7	152.2	151.8	152.1	151.6
27	152.6	153.0	153.5	153.7	153.2	153.0	152.9	152.6	152.2	151.9	152.0	152.0
28	152.6	153.2	153.5	153.9	153.2	153.0	152.9	152.8	152.1	151.9	151.8	151.7
29	152.6	.....	153.5	154.0	153.1	152.8	152.8	152.8	152.3	151.6	151.5	151.7
30	152.8	.....	153.5	153.6	153.1	152.7	152.8	152.5	152.3	151.6	151.5	152.0
31	152.6	.....	153.5	.....	153.1	.....	152.8	152.5	.....	151.7	.....	151.9

ELEVATION of St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1892.

TABLE No. 43.

Day of the month.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	151.5	151.6	150.9	151.5	151.8	152.4	153.2	152.8	152.9	152.5	152.0	152.1
2	151.5	151.5	151.0	151.8	151.9	152.3	153.0	152.8	152.8	152.5	151.7	152.1
3	151.7	151.4	151.0	152.3	151.9	152.2	153.0	152.8	152.7	152.5	152.0	152.1
4	151.5	151.6	151.0	153.3	152.3	152.1	153.3	152.8	152.7	152.3	152.0	152.1
5	151.5	151.6	151.0	153.3	152.3	152.2	153.4	152.8	152.6	152.2	152.0	152.2
6	151.5	151.5	151.0	153.3	152.3	152.3	153.4	152.8	152.8	152.0	152.2	152.0
7	152.0	151.5	151.1	153.0	152.3	152.3	153.4	152.8	152.8	152.2	152.2	152.0
8	151.8	151.2	151.0	152.8	152.1	152.4	153.2	152.8	152.5	152.2	152.9	152.0
9	152.0	151.5	151.0	152.6	152.0	152.4	153.2	152.7	152.6	152.3	152.5	152.1
10	152.0	151.5	151.2	152.6	152.0	152.2	153.2	152.7	152.6	152.4	152.3	152.1
11	151.7	151.3	151.3	152.5	151.9	152.3	152.5	152.7	152.5	152.4	152.2	152.2
12	151.6	151.5	151.3	152.3	151.8	152.4	152.5	152.7	152.5	152.3	152.1	152.2
13	151.6	151.6	151.3	152.3	152.1	152.5	152.5	152.7	152.5	152.3	152.1	152.2
14	151.8	151.1	151.8	152.1	152.0	152.5	152.5	153.0	152.7	152.2	152.0	152.0
15	151.8	151.2	151.8	152.0	152.0	152.3	153.2	153.0	152.7	152.2	152.0	152.0
16	151.6	151.3	151.8	152.0	152.1	152.5	153.2	153.0	152.7	152.2	152.0	152.1
17	151.6	151.3	151.8	151.7	152.2	152.5	153.2	152.9	152.7	152.1	152.0	151.5
18	151.8	151.3	151.2	151.7	152.1	152.3	153.2	152.9	152.7	152.1	152.0	151.8
19	151.8	151.2	151.6	151.9	151.8	152.3	153.2	152.9	152.7	152.1	152.5	152.0
20	151.8	151.2	151.5	151.9	151.8	152.6	153.2	152.7	152.7	152.1	152.6	152.0
21	151.8	150.6	151.5	152.0	151.7	153.0	153.0	152.7	152.3	152.1	152.3	152.0
22	151.8	150.6	151.5	152.1	151.8	153.0	153.0	152.6	152.3	152.2	152.5	152.0
23	151.8	150.6	151.2	152.1	152.0	152.9	153.0	152.6	152.3	152.2	152.5	152.0
24	151.6	150.6	151.2	152.1	152.3	152.7	152.9	152.6	152.3	152.2	152.5	152.2
25	151.6	150.7	151.1	152.2	152.4	152.7	152.9	152.6	152.2	152.2	152.5	152.0
26	151.5	150.7	151.1	152.0	152.4	152.7	152.9	153.3	152.6	152.1	152.5	152.2
27	151.5	150.8	151.1	152.0	152.6	152.5	152.9	153.3	152.7	152.1	152.2	152.6
28	151.5	151.0	151.2	151.8	152.5	152.8	152.9	153.0	152.7	152.1	152.1	152.9
29	151.5	151.0	151.4	152.0	152.5	153.0	152.8	153.0	152.6	152.0	152.0	152.8
30	151.6	.....	151.5	152.0	152.5	152.5	152.8	153.0	152.8	152.2	152.0	152.7
31	151.6	.....	151.5	.....	152.3	.....	152.8	153.0	.....	152.0	.....	152.7

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1893.

TABLE No. 44.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	152.1	151.0	151.0	152.5	152.5	153.5	153.1	153.0	153.5	152.5	152.3	152.3
2	152.2	151.0	151.0	152.6	152.8	153.5	153.1	153.0	153.5	152.5	152.6	152.2
3	152.0	150.9	151.0	152.5	153.0	153.5	153.0	153.0	153.2	152.5	152.5	152.2
4	152.0	150.9	151.0	152.5	153.4	153.5	153.0	153.0	153.1	152.5	152.3	151.9
5	152.0	151.0	151.0	152.5	152.8	153.5	153.0	153.0	153.0	152.5	152.1	151.9
6	151.8	151.0	151.0	152.5	154.0	153.5	153.2	152.9	152.8	152.3	152.3	151.9
7	152.0	151.0	151.0	152.5	154.0	153.5	153.2	152.9	152.8	152.6	152.1	151.5
8	152.3	151.0	151.0	152.7	153.7	153.5	153.1	152.5	152.8	152.6	152.1	152.3
9	152.3	151.2	151.1	152.8	153.6	153.5	153.3	152.5	152.9	152.7	152.3	152.2
10	152.5	151.2	151.1	152.8	153.5	153.3	153.0	152.5	152.7	152.7	152.0	152.5
11	152.5	151.2	151.1	152.8	153.5	153.2	153.0	152.5	152.5	152.3	152.0	152.5
12	152.3	151.0	151.1	152.5	154.3	153.1	153.2	152.5	152.5	152.3	152.0	152.5
13	152.3	151.0	151.3	152.7	153.8	153.1	153.0	152.9	152.5	152.2	152.1	152.2
14	152.2	151.0	151.3	152.7	153.2	153.1	153.0	152.7	152.5	152.3	152.3	152.1
15	152.2	151.0	151.6	152.5	153.1	153.3	153.0	152.5	152.5	153.5	152.3	152.0
16	152.2	151.0	151.6	152.5	152.9	153.3	153.3	152.3	152.5	153.2	152.4	152.0
17	152.0	151.0	151.7	152.5	152.9	153.3	153.1	152.3	152.9	152.6	152.4	152.1
18	151.8	151.0	151.7	152.6	153.0	153.4	153.1	152.5	152.9	152.6	152.3	152.1
19	151.8	150.9	151.7	152.6	153.0	153.5	153.0	152.5	152.9	152.1	152.4	152.1
20	151.8	150.8	151.7	152.6	153.5	153.5	153.0	152.3	152.9	152.1	152.0	152.5
21	151.8	151.0	151.7	152.8	153.9	153.3	153.1	152.3	152.8	152.3	152.0	153.0
22	151.8	151.0	151.8	153.0	153.8	153.2	153.3	152.6	152.8	152.1	152.0	152.9
23	151.8	151.0	151.9	153.0	153.7	153.3	153.3	152.5	152.7	152.3	152.4	152.9
24	151.8	151.0	152.0	153.0	153.7	153.1	153.2	152.5	153.0	152.3	152.4	152.9
25	151.6	151.0	152.0	153.0	154.0	153.2	153.0	152.5	153.0	152.3	152.4	152.8
26	151.3	151.0	152.1	152.9	153.6	153.0	153.3	152.5	153.0	152.1	152.2	152.5
27	151.3	151.1	152.3	152.9	153.5	153.0	153.3	152.5	152.6	152.1	152.0	152.5
28	151.2	151.1	152.3	153.0	153.5	153.0	153.3	152.5	152.6	152.1	152.3	152.9
29	151.0	.....	152.4	153.0	153.5	153.1	153.3	152.0	152.6	152.5	152.3	152.9
30	151.1	.....	152.4	152.9	153.5	153.1	153.1	153.0	152.5	152.3	152.3	152.7
31	151.0	.....	152.5		153.5		153.0	153.5	.....	152.3	.....	152.7

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1894.

TABLE No. 45.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	151.3	153.0	.....	153.0	153.0	152.2	152.0	152.1	152.2	151.5
2	.....	.....	151.0	153.0	.....	152.8	152.9	152.0	151.8	152.1	152.0	151.5
3	.....	.....	151.0	152.7	.....	153.1	152.8	152.1	151.8	152.0	152.3	151.5
4	.....	.....	151.1	152.6	.....	153.4	153.0	152.3	151.8	152.0	152.0	151.5
5	.....	.....	151.1	152.6	.....	153.3	153.0	152.3	151.8	151.8	151.8	151.5
6	.....	.....	151.5	152.6	.....	153.3	153.0	152.3	152.0	152.1	152.1	151.5
7	.....	.....	151.6	152.6	.....	153.4	153.0	152.3	151.8	152.0	152.0	151.5
8	.....	.....	153.0	152.3	.....	153.4	153.0	152.1	151.8	151.8	151.8	151.2
9	.....	.....	152.9	152.3	.....	153.2	152.8	152.1	152.0	152.0	151.8	151.4
10	.....	.....	152.9	152.2	.....	153.2	152.8	152.3	152.2	151.8	151.8	151.3
11	.....	.....	153.0	152.1	.....	153.0	152.8	152.3	152.2	152.1	152.0	151.4
12	.....	.....	153.1	152.1	.....	153.0	152.8	152.1	152.2	152.1	152.0	151.1
13	.....	.....	153.0	152.1	.....	153.0	153.0	152.3	152.1	151.8	152.0	151.6
14	.....	.....	153.2	152.3	.....	152.7	152.8	152.3	152.0	152.3	152.1	151.9
15	.....	.....	153.1	152.5	.....	152.7	152.8	152.3	152.0	152.3	152.1	152.0
16	.....	.....	153.1	152.5	.....	153.0	152.7	152.2	152.3	152.2	152.1	151.8
17	.....	.....	153.0	152.5	.....	152.8	152.5	152.2	152.3	152.2	152.1	151.8
18	.....	.....	152.8	152.3	.....	152.7	152.5	152.2	152.3	152.3	151.8	151.9
19	.....	.....	153.1	152.3	.....	152.6	152.5	152.0	151.8	152.1	152.1	151.9
20	.....	.....	153.1	152.6	.....	152.8	152.3	152.2	151.8	151.8	151.7	151.6
21	.....	.....	153.0	152.9	.....	152.8	152.3	152.2	152.0	151.8	151.8	151.6
22	.....	.....	152.8	152.6	.....	152.8	152.3	152.2	151.8	151.8	152.0	151.6
23	.....	.....	153.0	152.6	.....	152.8	152.1	152.0	152.0	152.0	152.0	151.3
24	.....	.....	152.9	152.6	.....	152.8	152.1	152.1	152.2	151.8	151.8	151.3
25	.....	.....	153.0	152.9	.....	152.8	152.3	152.0	152.2	151.6	151.6	150.6
26	.....	.....	153.1	152.8	.....	152.9	152.3	152.2	152.0	151.8	151.6	151.3
27	.....	.....	153.0	152.8	.....	152.8	152.3	151.8	152.0	151.8	151.6	151.1
28	.....	.....	153.0	152.8	.....	152.8	152.3	152.0	152.0	151.7	152.0	151.5
29	.....	.....	152.8	152.8	.....	152.8	152.3	151.8	152.0	151.5	151.7	151.8
30	.....	.....	152.7	152.8	.....	152.8	152.3	151.8	152.0	151.3	151.3	152.1
31	.....	.....	152.7	.....	.....	.....	152.2	152.0	.....	.....	.....	152.5

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1895.

TABLE No. 46.

Day of the month.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	152.5	151.8	150.6	152.0	151.9	151.8	151.6	152.0	151.3	151.1	151.0	150.8
2	152.1	152.0	150.7	152.1	151.8	151.8	151.6	152.0	151.3	151.0	150.5	150.8
3	152.3	151.6	151.0	152.1	151.8	151.6	151.6	151.8	151.3	151.0	150.5	150.8
4	152.0	152.0	150.8	152.2	151.7	151.6	151.6	151.7	151.2	150.8	150.5	150.6
5	152.0	152.0	150.8	152.2	151.8	151.6	151.4	151.5	151.2	150.8	150.5	150.8
6	152.0	152.4	150.8	152.2	151.8	152.0	151.4	151.2	151.0	150.8	150.5	150.6
7	151.9	152.4	150.9	152.2	151.8	152.0	151.5	151.3	151.0	150.7	150.5	150.5
8	152.3	150.8	150.9	152.2	151.8	152.0	151.3	151.3	151.1	150.9	150.6	150.5
9	152.3	150.5	150.9	152.3	152.0	151.8	151.6	151.5	151.1	150.9	150.0	150.6
10	152.1	150.8	151.2	152.5	152.0	151.8	151.6	151.3	150.9	150.9	150.1	151.0
11	152.0	151.0	151.3	152.9	152.0	151.8	151.5	151.1	151.1	151.0	150.5	150.6
12	152.0	151.2	151.0	152.8	152.1	151.8	151.3	151.8	151.1	150.8	150.6	150.5
13	151.5	150.7	150.9	152.8	152.1	151.8	152.5	152.4	151.0	150.8	150.5	150.8
14	151.5	150.6	151.1	152.6	151.6	151.8	152.3	152.0	150.9	150.8	150.6	151.1
15	151.7	150.5	151.0	152.6	151.6	151.6	152.3	151.5	150.9	150.7	150.5	151.2
16	151.5	150.8	151.0	152.6	152.0	151.6	152.2	151.3	151.0	150.7	150.9	151.2
17	151.5	150.8	151.1	152.5	152.1	152.0	152.6	151.3	151.0	151.0	150.8	151.0
18	151.8	150.6	151.2	152.5	151.8	152.0	151.5	151.3	150.8	151.0	151.0	151.0
19	152.0	150.5	151.2	152.6	151.8	151.8	151.5	151.4	150.9	151.1	150.6	150.8
20	152.1	150.3	151.1	152.5	152.0	151.8	151.3	151.5	150.8	150.9	150.8	150.6
21	152.2	150.5	151.1	152.5	152.0	151.5	151.3	151.5	150.9	150.8	151.0	150.7
22	152.2	150.5	151.0	152.5	152.1	151.5	151.2	151.3	151.0	150.8	150.5	150.8
23	152.0	150.6	151.0	152.8	152.0	151.8	151.3	151.5	151.3	150.8	150.5	150.8
24	152.1	150.7	150.5	153.0	152.0	151.8	151.3	151.3	151.0	150.8	150.5	151.1
25	152.0	150.8	151.0	153.0	152.0	151.8	151.3	151.3	150.9	150.8	150.0	150.8
26	151.8	150.8	151.5	152.3	151.8	151.8	151.3	151.5	150.9	150.7	150.7	150.8
27	152.0	150.6	151.8	152.1	152.0	151.5	151.1	151.5	150.9	150.6	151.0	151.3
28	152.1	.....	152.0	152.0	152.1	151.5	151.1	151.5	150.8	151.0	151.1	151.5
29	152.0	.....	152.0	152.0	152.1	151.7	151.3	151.3	150.8	150.9	151.1	151.4
30	151.6	.....	152.1	152.0	152.0	151.7	151.5	151.3	151.2	150.8	151.0	151.2
31	151.6	.....	152.1	.....	151.8	.....	152.0	151.3	.....	150.7	.....	152.6

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1896.

TABLE No. 47.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	152.1	151.6	151.2	151.7	152.0	152.1	151.9	151.8	151.6	151.1	151.0	151.1
2	152.0	152.1	151.3	151.9	152.0	152.0	151.9	151.6	151.5	151.0	151.0	151.0
3	152.0	152.0	151.3	152.0	152.0	152.0	151.7	151.6	151.5	150.9	150.8	151.0
4	151.8	152.0	151.5	152.1	152.1	152.0	151.6	151.5	151.3	150.9	150.7	150.8
5	151.8	151.8	151.5	152.2	152.3	152.0	151.6	151.5	151.0	150.9	150.7	151.0
6	151.6	151.3	151.5	151.9	152.0	152.0	151.6	151.5	151.2	150.9	150.5	151.0
7	151.5	151.1	151.6	151.8	152.0	151.9	151.8	151.5	151.3	151.0	150.8	151.0
8	151.8	151.3	151.6	151.8	152.0	151.8	151.8	151.6	151.3	151.0	151.2	151.1
9	151.6	151.1	151.8	152.0	152.0	151.8	151.5	151.6	151.3	150.9	151.1	151.1
10	152.0	151.1	151.6	152.1	152.0	152.0	151.5	151.6	151.3	150.9	151.0	151.0
11	151.8	151.2	151.5	152.5	152.0	152.0	151.6	151.6	151.3	150.7	151.0	151.0
12	152.0	151.5	151.5	152.7	152.0	152.0	151.8	151.5	151.2	150.7	151.0	151.0
13	152.1	151.3	151.2	152.8	152.0	152.0	151.6	.....	151.3	150.7	150.9	151.0
14	152.0	151.5	151.1	153.2	151.9	151.8	151.5	151.5	151.3	150.7	150.9	151.1
15	152.0	151.5	151.3	153.3	151.8	151.9	151.6	151.5	151.3	150.8	150.8	151.0
16	152.0	151.5	151.3	153.1	152.0	151.9	151.8	152.6	151.2	151.0	150.8	150.6
17	151.8	151.6	151.1	153.0	152.0	151.9	151.8	151.8	151.1	151.0	151.0	150.6
18	151.6	151.8	151.1	153.0	152.1	151.9	151.6	151.5	151.1	150.8	150.8	150.5
19	151.5	151.6	150.8	153.0	152.1	151.9	151.6	151.5	151.0	151.0	151.1	151.1
20	151.5	152.0	150.8	153.1	152.1	151.9	151.6	151.6	151.5	151.0	151.0	151.0
21	151.5	151.8	151.0	152.6	151.9	151.8	151.6	151.5	151.5	151.3	151.0	151.0
22	151.3	152.3	150.8	152.6	152.0	151.9	151.6	151.5	151.2	151.1	150.8	151.0
23	151.1	152.3	150.6	152.5	152.0	151.9	151.9	151.6	151.1	151.0	150.8	150.8
24	151.0	152.3	150.8	152.4	151.9	151.7	151.8	151.8	151.0	151.0	151.0	151.0
25	151.0	152.1	150.6	152.4	151.8	151.8	151.8	151.3	151.1	150.9	150.8	151.1
26	150.8	151.8	150.6	152.4	151.9	152.0	151.9	151.5	151.1	150.9	150.8	151.1
27	151.3	151.5	150.5	152.3	152.0	152.0	151.9	151.5	151.1	150.8	150.8	151.5
28	151.3	151.5	150.8	152.3	151.9	152.0	151.7	151.5	151.0	150.6	151.1	151.0
29	152.0	151.5	151.1	152.2	152.1	152.0	151.7	151.5	151.0	150.8	151.1	151.0
30	152.1	151.3	151.1	152.0	152.1	152.0	151.8	151.5	151.0	150.8	151.1	151.0
31	152.1	.....	151.3	.....	152.2	.....	151.9	151.6	.....	151.0	.....	151.0

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1897.

TABLE No. 48.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	151.0	150.5	151.2	151.8	151.8	152.3	152.0	152.3	151.8	151.4	151.0	151.1
2	151.0	150.8	151.1	151.8	151.9	152.0	152.0	152.2	151.7	151.1	150.5	151.3
3	151.0	150.5	150.8	151.8	151.9	152.0	152.0	152.2	151.6	151.3	151.0	151.1
4	150.8	150.5	151.0	151.8	152.0	152.3	152.0	152.1	151.6	151.3	151.0	151.3
5	151.0	150.6	151.1	151.8	152.1	152.1	152.0	152.0	151.6	151.4	151.0	151.5
6	151.0	150.6	151.0	151.7	152.0	152.1	152.0	152.0	151.6	151.5	151.3	151.1
7	151.0	150.6	150.8	151.9	152.0	151.9	152.1	152.0	151.5	151.3	151.5	151.1
8	151.0	150.6	150.8	152.1	152.0	152.0	152.0	152.0	151.6	151.2	151.3	151.1
9	151.0	150.8	150.8	152.0	152.2	152.0	152.0	152.0	151.6	151.3	150.5	151.2
10	151.0	150.6	150.8	152.0	152.0	152.1	151.9	151.9	151.6	151.3	150.9	151.2
11	151.0	150.6	150.8	152.0	150.0	152.1	152.0	152.1	151.5	151.0	151.2	151.3
12	151.0	150.5	151.0	151.8	150.0	152.2	152.0	152.0	151.6	151.5	151.3	151.3
13	151.0	150.6	151.0	151.9	150.0	152.3	152.0	152.0	151.6	151.4	151.5	151.3
14	150.8	150.8	151.1	151.8	150.1	152.2	152.0	152.1	151.6	151.3	151.3	151.0
15	150.8	151.2	151.1	152.0	150.1	152.1	152.0	152.1	151.5	151.3	151.0	151.5
16	150.9	151.2	151.5	152.0	150.1	152.2	152.0	152.2	151.5	151.5	151.3	152.0
17	151.0	151.1	151.4	152.0	150.1	152.1	151.9	152.1	151.7	151.2	151.3	151.7
18	151.0	151.1	151.0	152.1	152.1	152.2	151.9	152.0	151.5	151.4	151.3	151.6
19	151.0	151.0	150.8	153.3	152.0	152.0	151.8	152.0	151.6	151.2	151.0	151.6
20	150.8	151.0	151.0	152.5	152.0	152.3	151.9	152.0	151.5	150.8	151.2	151.5
21	150.8	151.0	151.5	152.3	152.2	152.3	151.9	152.2	151.6	150.9	151.2	151.7
22	151.0	150.8	151.5	152.0	152.2	152.3	151.9	152.0	151.5	150.9	151.0	151.6
23	151.0	150.6	151.5	151.9	152.1	152.2	152.0	151.8	151.3	151.0	151.1	151.6
24	150.8	150.6	151.3	151.9	152.2	152.1	152.0	151.7	151.3	151.1	151.3	151.6
25	150.8	150.8	151.5	152.0	152.0	152.2	152.0	152.2	151.5	150.9	151.3	151.5
26	150.8	151.0	151.6	152.0	152.1	151.1	151.8	151.9	151.5	151.0	151.3	151.7
27	151.0	151.1	151.8	152.3	152.0	151.1	151.9	151.8	151.4	151.0	151.5	151.6
28	150.8	151.2	152.0	152.3	152.0	151.2	151.9	151.9	151.5	151.0	151.3	151.7
29	151.0	.....	152.0	152.3	152.3	151.0	152.0	152.0	151.4	151.0	151.4	151.6
30	151.1	.....	152.0	152.3	152.2	151.0	152.3	152.0	151.3	151.0	151.4	151.6
31	151.4	.....	152.0	.....	152.5	.....	152.4	152.0	.....	151.0	.....	151.6

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1898

TABLE No. 49.

Day of the month.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	151.7	152 0	151.9	152.5	152.2	152.3	152.1	151.6	151.7	151.4	151.4	151.4
2	151.6	152.0	151.9	152.5	152.1	152.2	152.2	151.6	151.6	151.3	151.5	151.3
3	151.8	151.8	151.8	152.5	152.0	152 2	152.2	151.8	151.6	151.3	151.6	151.3
4	151.5	151.6	151.8	152 5	152.2	152.0	152.2	151.9	151.5	151.2	151.4	151.2
5	151.5	152.1	151.8	152.4	152.3	152.0	152 1	152.0	151.5	151.4	151.4	151.5
6	151.6	152.1	152.0	152.4	152.3	152.0	152.0	152.0	151.5	151.5	151.5	151.6
7	151.6	151.8	151.9	152.3	152.3	152.0	152.0	151 9	151.5	151.4	152.0	151.8
8	151.7	151.8	151.7	152.3	152 2	152.1	152.0	152.0	151.5	151.4	151.7	151.5
9	151.6	151.7	151.7	152.1	152.1	152.2	152.0	152.0	151.4	151.4	151.5	151.6
10	151.6	152.0	151.8	152.1	152.1	152 1	152.0	152.0	151.3	151.3	151.5	151.7
11	151.6	151.8	152.0	152.2	152.1	152.2	152.0	151.8	151.4	151.3	150.8	151.5
12	151.5	151.6	152.1	152.3	152.2	152.1	152.0	151.8	151.4	151.4	151.0	151.5
13	151.5	151.9	152.8	152.0	152.2	152.3	152.0	151.8	151.5	151.4	151.5	151.4
14	151.7	151.9	153.0	152.0	152.4	152.3	152.0	151.9	151.5	151.0	151.5	151.3
15	151.4	152.0	153.0	152.0	152.3	152.5	152.0	152.0	151.4	151.3	151.5	151.4
16	151.7	151.8	153.0	152.0	152.3	152 3	151.9	152.0	151.3	151.7	151.5	151.3
17	151.7	152.0	152.9	152.0	152.3	152.1	151.9	151.8	151.4	151.3	151.4	151.3
18	151.6	151.7	152.9	152.0	152.2	152.3	151.8	151.8	151.5	151.0	151.2	151.4
19	151.5	151.8	152.9	152.0	152.4	152.1	151.8	151.7	151.5	151.2	151.0	151.5
20	151.3	151.7	152.9	152.0	152.4	152.0	151.7	151.7	151.5	151.4	150.8	151.5
21	151.5	151.6	152.5	152.2	152.1	152.1	151.6	151.8	151.5	151.0	150.8	151.5
22	151.5	151.6	152.5	152.2	152.1	152.1	151.7	151.8	151.5	151.3	150.9	151.4
23	151.5	151.8	152.5	152.2	152.3	152.1	151.6	151.7	151.4	151.7	151.1	151.3
24	151.3	151.7	152.5	152.0	112.4	152.0	151.6	151.7	151.1	151.7	151.3	151.5
25	151.6	152.0	152.5	151.9	152.3	152.1	151.5	151.6	151.4	151.5	151.3	151.5
26	151.5	152.0	152.4	152 0	152.1	152.2	151.5	151.6	151.5	151.3	151.4	151.5
27	151.6	152.0	152.5	152.0	152.2	152.4	151.6	151.5	151.5	151.3	151.2	151.4
28	151.6	152.0	152.5	152.0	152.3	152.3	151.6	151.5	151.5	151.5	151.3	151.3
29	151.5	.....	152 5	151.9	152.3	152.2	152.0	151.4	151.4	151.5	151.4	151 6
30	151.3	.....	152.5	152.2	152.3	152.2	152.0	151.3	151.4	151.3	151.4	151.5
31	151.3	.....	152.5	.....	152 4	.....	151.8	151.8	.....	151.6	.....	151.4

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1899.

TABLE No. 50.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	151.5	151.6	151.5	152.1	152.5	152.4	152.0	152.0	151.2	151.0	150.8	150.8
2	151.5	151.6	151.4	152.2	152.4	152.4	152.3	151.9	151.2	151.0	151.0	151.0
3	151.6	151.5	151.2	152.2	152.2	152.3	152.2	151.8	151.6	151.3	151.0	151.1
4	151.5	151.7	151.2	152.1	152.3	152.2	152.0	151.7	151.5	151.1	151.3	151.3
5	151.5	151.6	151.3	152.3	152.3	152.3	152.0	151.7	151.4	151.0	151.5	151.0
6	151.4	151.6	151.4	152 2	152.3	152.3	152.0	151.8	151.5	151.0	151.3	150.8
7	151.6	151.5	151.6	152.2	152.4	152.2	151.9	151.8	151.3	151.0	151 1	150.9
8	151.5	151.3	151.9	152.2	152.4	152.7	151.9	151.9	151.4	151.0	151.3	150.8
9	151.5	151.4	151.6	152.9	152.3	152.5	152.3	151.8	151.3	150.9	151.2	150.7
10	151.4	151.5	151.6	152.7	152.2	152.4	152.3	151.7	151.3	150.8	151.3	150.6
11	151.3	151.5	151.5	152.5	152 3	152.3	152.1	151.5	151.4	150.9	151.3	150.8
12	151.5	151.6	151.5	152.4	152.3	152.1	152.1	151.6	151.5	151.0	151.2	151.0
13	151.5	151.5	152.0	152.5	152.3	152.1	152.4	151.6	151.5	150.9	151.1	151.5
14	151.5	151.4	151.8	152.4	152.4	152.1	152 2	151.5	151.4	150.4	151.0	151.3
15	151.5	151.1	151.7	153.0	152.5	152.0	151.5	151.5	151.3	151.3	151.0	151.2
16	151.5	151.0	151.7	153.2	152.5	152.3	152.0	151.5	151.3	151.3	151.0	151.0
17	151.4	151.3	152.4	152.6	152.3	152.3	152.1	151.5	151.4	151.0	150.7	151.0
18	151.5	151.3	152.0	152.5	152.4	152.2	152.2	151.6	151 3	150.9	150.8	151.1
19	151.6	151.4	151.9	152.5	152.0	152.1	152.1	151.6	151.1	151.1	151.1	151.2
20	151.5	151.5	152.0	152.5	152.0	152.1	152.1	151.5	151.0	151.1	151.0	151.3
21	151.5	151.4	151.8	152.4	152.1	152.0	152.0	151.7	151.1	151.4	150 8	151.3
22	151.5	151.5	151.8	152.5	152.1	152.1	152.0	151.7	151.0	151.0	151.0	151.1
23	151.4	151.6	152.2	152.5	152.0	152.3	152.0	151.5	151.1	151.0	150.9	151.3
24	151.3	151.9	151.9	152.4	152.0	152.3	151.9	151.5	151.3	151.0	151.0	151.3
25	151.4	151.6	151.9	152.4	152.0	152.2	152.0	151.6	151.5	151.0	151.0	151.3
26	151.5	151.4	151.9	152.5	152.2	152.2	152.0	151.5	151.3	150.9	151.0	151.1
27	151.5	151.5	151.8	152.5	152.2	152.1	152.0	151.5	151.3	151.0	151.0	151.2
28	151.5	151.4	151.6	152.4	152 1	152.0	151.8	151.5	151.5	151.0	150.9	151.3
29	151.5	.....	152.0	152.4	152.0	152.0	152.0	151.3	151.4	151.4	150.9	151.5
30	151.6	.....	152.0	152 5	152.5	152.2	152.1	151.3	151.5	151.3	150.8	151.4
31	151.6	.....	152.5	.....	152.3	.....	152.0	151.4	.....	151.0	.....	151.3

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1900.

TABLE No. 51.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	151.5	152.1	151.1	151.8	152.5	152.3	152.3	152.0	151.7	151.5	151.1	151.5
2	151.6	152.0	151.3	151.8	152.4	152.5	152.2	152.0	151.7	151.4	151.1	151.4
3	152.0	151.8	151.5	151.7	152.5	152.5	152.1	151.9	151.8	151.4	151.0	151.2
4	151.8	151.4	151.5	151.9	152.5	152.8	152.0	151.9	151.8	151.5	151.0	151.1
5	151.8	151.6	151.5	152.0	152.5	152.6	152.0	151.9	151.8	151.5	151.0	151.2
6	151.5	151.5	151.4	152.3	152.7	152.5	152.0	151.9	151.9	151.5	151.0	151.2
7	151.5	151.4	151.3	152.6	152.1	152.5	152.0	151.8	151.8	151.4	151.0	151.3
8	151.4	151.4	151.4	153.0	152.0	152.3	152.1	152.0	151.7	151.4	151.0	151.3
9	151.5	151.6	151.5	152.7	152.4	152.4	152.1	152.0	151.6	151.4	151.0	151.2
10	151.3	151.5	151.5	152.5	152.4	152.3	152.3	152.0	151.6	151.4	151.0	151.2
11	150.5	151.5	151.5	152.4	152.3	152.4	152.1	152.0	151.4	151.5	151.0	151.3
12	150.1	151.4	151.5	152.1	152.3	152.4	152.0	151.8	151.5	151.6	150.9	151.2
13	150.5	152.4	151.3	152.0	152.2	152.1	152.2	151.6	151.6	151.5	150.9	151.3
14	150.7	152.2	151.5	152.1	152.2	152.1	152.2	151.8	151.6	151.5	151.0	151.4
15	151.0	152.0	151.5	152.2	152.2	152.1	152.0	152.0	151.5	151.5	151.1	151.5
16	150.9	152.0	151.5	152.3	152.3	152.0	152.0	152.0	151.5	151.4	151.2	151.7
17	151.1	152.0	151.4	152.4	152.3	152.0	152.2	152.0	151.5	151.4	151.3	152.0
18	151.0	151.8	151.3	152.5	152.4	152.1	152.2	152.0	151.5	151.4	151.4	151.8
19	151.2	152.1	151.5	152.4	152.4	152.1	152.1	151.9	151.4	151.4	151.3	151.8
20	151.5	152.0	151.5	152.3	152.3	152.1	152.0	151.7	151.6	151.3	152.0	151.7
21	151.5	151.6	151.6	152.1	152.3	152.1	152.2	151.6	151.8	151.3	152.0	151.6
22	151.6	151.5	151.6	152.5	152.3	152.0	152.1	151.6	151.7	151.4	152.0	151.5
23	151.8	151.4	151.5	152.4	152.2	152.0	152.0	151.8	151.6	151.4	151.9	151.5
24	151.6	151.3	151.5	152.3	152.4	152.1	152.0	151.9	151.6	151.3	151.9	151.4
25	151.6	151.5	151.5	152.4	152.3	152.0	152.0	151.9	151.5	151.3	151.8	151.4
26	151.5	151.6	151.6	152.3	152.2	151.9	152.0	151.9	151.5	151.4	151.7	151.3
27	151.6	151.6	151.8	152.2	152.3	152.1	152.0	151.8	151.5	151.4	151.6	151.4
28	151.9	151.5	151.9	152.1	152.2	152.1	151.9	151.7	151.5	151.3	151.6	151.3
29	152.0	.....	151.8	152.4	152.1	152.0	152.0	151.8	151.4	151.2	151.5	151.4
30	151.9	.....	151.7	152.7	152.3	152.3	152.0	151.8	151.3	151.1	151.5	151.5
31	151.7	.....	151.6	.....	152.3	.....	152.0	151.8	.....	151.0	.....	151.6

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1901

TABLE No. 52.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	151.7	151.8	151.7	152.3	152.3	151.9	152.1	151.6	151.3	151.3	151.3	150.9
2	151.8	151.8	151.5	152.2	152.2	152.0	152.1	151.6	151.4	151.4	151.2	150.9
3	152.0	151.8	151.4	152.3	152.2	152.3	152.0	151.6	151.5	151.4	151.0	150.8
4	152.4	151.7	151.4	152.3	152.1	152.4	152.0	151.5	151.5	151.3	151.0	150.8
5	152.3	151.6	151.3	152.4	152.0	152.3	152.0	151.5	151.5	151.4	151.1	150.9
6	152.3	151.6	151.2	152.5	152.0	152.2	151.9	151.5	151.4	151.4	151.1	150.7
7	152.2	151.5	151.1	152.6	152.0	152.2	151.9	151.5	151.4	151.4	150.8	150.6
8	152.2	151.7	151.1	152.7	152.0	152.4	151.9	151.4	151.5	151.2	151.0	150.6
9	152.2	151.8	151.1	152.8	152.0	152.2	151.8	151.4	151.4	151.2	151.0	150.8
10	152.0	151.9	151.0	152.6	152.0	152.1	151.8	151.4	151.3	151.2	151.1	151.5
11	152.0	152.0	151.0	152.5	152.0	152.0	151.7	151.5	151.2	151.3	150.6	151.1
12	151.7	152.0	151.0	152.4	152.0	152.0	151.7	151.5	151.3	151.2	150.9	151.0
13	151.8	151.9	151.1	152.2	152.3	151.9	151.7	151.6	151.3	151.2	151.0	151.0
14	151.8	151.9	151.1	152.1	152.2	152.0	151.9	151.6	151.4	151.3	151.0	151.1
15	151.9	151.9	151.1	152.1	152.1	152.0	151.9	151.6	151.3	151.3	151.1	152.3
16	152.0	151.8	151.0	152.1	152.0	151.8	151.8	151.5	151.5	151.3	151.1	152.0
17	152.0	151.8	151.2	152.0	152.0	151.7	151.7	151.5	151.5	151.2	151.1	151.8
18	151.8	151.8	151.3	152.0	152.0	151.6	151.7	151.5	151.6	151.3	151.0	151.8
19	151.8	151.7	151.5	151.9	152.0	151.7	151.8	151.5	151.5	151.3	151.0	151.5
20	152.0	151.7	151.4	151.8	151.9	151.8	151.8	151.5	151.3	151.3	151.0	151.5
21	152.1	151.6	151.6	151.8	152.0	151.9	151.7	151.5	151.2	151.4	151.0	151.5
22	152.1	151.6	151.7	151.8	152.0	151.9	151.7	151.5	151.1	151.4	151.0	151.5
23	152.0	151.5	151.7	152.0	151.9	151.9	151.7	151.5	151.3	151.4	150.7	151.6
24	152.0	151.5	151.6	152.3	151.9	152.0	151.6	151.4	151.4	151.4	150.3	151.6
25	152.0	151.5	151.8	152.3	151.9	152.0	151.6	151.3	151.3	151.4	150.7	151.5
26	132.0	151.5	152.0	152.2	151.8	151.9	151.5	151.4	151.2	151.3	151.0	151.3
27	151.9	151.5	152.0	152.2	151.8	152.1	151.5	151.5	151.3	151.3	150.9	151.4
28	151.9	151.7	152.2	152.2	151.8	152.1	151.6	151.5	151.3	151.2	150.9	151.4
29	151.8	.....	152.2	152.4	151.6	152.0	151.5	151.4	151.1	151.1	150.6	151.5
30	151.8	.....	152.2	152.2	151.6	152.1	151.5	151.3	151.2	151.1	150.8	151.5
31	151.7	.....	152.3	.....	152.0	.....	151.5	151.3	.....	151.4	.....	151.6

ELEVATIONS of River St. Lawrence at Head of Beauharnois Canal, Valleyfield, Que., during the year 1902.

TABLE No. 53.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	152.1	151.5	150.6	152.0	151.9	151.6	151.9	152.0	152.0	151.5	151.4	151.4
2	152.2	151.5	151.0	152.0	151.9	151.8	151.9	152.0	152.0	151.6	151.4	151.4
3	152.2	151.8	151.3	152.0	151.8	151.8	151.9	152.2	152.0	151.5	151.5	151.3
4	152.3	151.7	151.9	152.0	151.8	151.9	151.9	152.0	152.0	151.5	151.4	151.4
5	152.5	151.6	151.9	152.0	151.8	151.8	152.0	152.0	151.9	151.4	151.4	151.2
6	152.5	151.3	151.7	151.8	151.7	151.6	151.9	152.1	151.7	151.6	151.5	151.2
7	152.5	151.0	151.8	151.8	152.0	151.9	152.0	152.1	152.0	151.8	151.5	151.2
8	152.4	150.9	151.7	151.6	152.0	152.0	152.0	152.0	151.7	151.6	151.3	151.4
9	152.3	150.8	151.7	151.0	152.0	152.0	151.9	152.0	151.9	151.5	151.4	151.2
10	152.5	150.9	151.5	151.3	151.9	152 0	151.9	152.0	151.9	151.5	151.5	151.3
11	152.5	151.0	151.6	151.6	151.9	152.0	152.0	152.1	151.7	151.5	151.1	151.3
12	152.3	150.8	152.5	151.9	151.7	151.8	152.0	152.0	151.8	151.6	151.1	151.1
13	152.2	150.8	152.6	152.0	151.8	151.9	152 0	152.0	151.8	151.6	151.0	151.1
14	152.0	150.8	152.6	152.0	151.8	151.8	152.0	152.0	151.9	151.7	151.2	151.3
15	152.0	150.9	152.5	152.0	151.6	151.8	152.1	152.0	151 7	151.8	151.3	151.5
16	151.9	150.8	152.5	151.8	151.8	151 9	152.0	152.0	151.6	151.6	151.5	151.8
17	151.9	150.8	153.0	151.8	151.7	152.0	151.9	152.0	151.5	151.5	151.2	151.7
18	151 9	150.8	152.9	151.8	151.7	152 0	152 0	152.0	151.6	151.3	151.2	151.6
19	152.0	151.0	153.0	151.7	151.5	151.8	152.0	151.9	151.5	151.6	151.4	151.4
20	151.8	151.0	152.6	151.7	151.5	151.8	151.9	151.9	151.5	151.5	151.4	151.3
21	151.9	150.7	152.2	151.8	151.6	151.9	151.9	152.0	151 5	151.5	151.5	151.2
22	151.7	150.6	152.3	151.8	151.7	152.0	151.9	152.0	151.5	151.4	151.5	151.0
23	151.9	150.6	152.5	151.9	151.8	152.0	151.9	152.0	151.6	151.3	151.6	151.0
24	151.8	150.4	152.2	152.0	151.8	151.9	152.0	152.0	151.5	151.5	151.5	150.9
25	151.8	150.4	152.3	151.9	151.7	151.8	152.0	151.9	151.2	151.5	151.5	151.0
26	152 0	150.4	152.3	152.0	151.8	151.9	152.0	151.9	151.4	151.2	150.8	151.0
27	152.0	150.3	152.1	152.0	151.7	152.0	152.0	151.9	151.5	151.3	151.0	151.1
28	152.0	150.4	152.0	152.0	151.8	151.9	152.0	151.7	151.5	151.5	151.3	151.1
29	152.0	.....	132 5	151.9	151.8	151.9	152.0	151.7	151.5	151.4	151.1	151.0
30	151.7	.....	152.3	151.9	151.7	151.8	152.0	151.8	151.5	151.4	151.9	151.5
31	151.6	.....	152.4	.....	151.7	.....	152.0	151.9	.....	151.5	.....	151.5

ELEVATIONS of River St. Lawrence at Head of Soulanges Canal, at Coteau Landing, Que., during the year 1903.

TABLE No. 54.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	152.25	152.25	152.66	152.58	152.33	152 25	152.41	152.25	152.00	151.83	151.41
2	.....	152.33	152.33	152.58	152.58	152.25	152.41	152.41	152.25	151.91	151.83	151.41
3	.....	152.33	152.33	152.58	152.66	152.25	152.50	152.41	152 25	151.91	151.83	151.33
4	.....	152.33	152.33	152.58	152.66	152.25	152.50	152.41	152.25	151.91	151.83	151.33
5	.....	152.41	152.33	152.66	152.58	152.00	152.50	152.41	152.25	151.91	151.75	151.33
6	.....	152.41	152.33	152.66	152.58	152.00	152.50	152.41	152.25	151.83	151.66	151.25
7	.....	152.41	152.41	152.58	152.58	152.25	152.41	152.41	152.00	151.83	151.66	151.25
8	.....	152.33	152.41	152.66	152.41	152.25	152.41	152.41	152.00	151.91	151.66	151.25
9	.....	152.33	152.41	152.58	152.50	152.25	152.41	152.41	152.25	151.83	151 66	151.00
10	.....	152.33	152.50	152.66	152.41	152.25	152.41	152.41	152.25	151.75	151.75	150.91
11	.....	152.33	152.58	152.66	152.58	152.25	152.41	152.41	152.25	151.75	151.75	151.00
12	.....	152.25	152.58	152.66	152.41	152.33	152.41	152.41	152 25	151.91	151.66	151.25
13	.....	152.25	152.66	152.66	152.41	152.41	152.41	152.41	152.25	151.91	151.66	151.50
14	.....	152.33	152.75	152.33	152.50	152.33	152.41	152.41	152.25	151.91	151.66	151.33
15	.....	152.25	152.66	152.33	152.50	.....	152.41	152.41	152 25	151.91	151.66	150 91
16	.....	152.25	152.66	152.41	152.41	.....	152.33	152.50	152.25	151.91	151.66	150.91
17	.....	152.33	152.58	152.58	152.41	152.25	152.33	152.33	152.25	151.83	151.66	151.41
18	.....	152 33	152.66	152.75	152.41	152.25	152.25	152.33	152.25	151.83	151.58	151.50
19	.....	152.33	152.75	152.58	152.41	152.33	152.25	152 25	152.00	151.83	151.58	151 58
20	.....	152.33	152.91	152.66	152.41	152.33	152.25	152.41	152 00	151.91	151.58	151.66
21	.....	152.33	152.75	152.66	152.41	152.33	152.33	152.41	151.91	151.91	151 58	151.75
22	.....	152.33	152.91	152.75	152.41	152.33	152.41	152.58	151.91	151.91	151.58	151.83
23	.....	152.33	152.66	152.75	152.41	152.33	152.41	152.25	152.25	151.83	151.50	151.83
24	.....	152.33	152.91	152.66	152.33	152.41	152 50	152.25	152.00	151.83	151 50	151.91
25	.....	152.33	153.00	152.66	152.33	152.41	152.41	152.25	151.91	151.83	151.50	152.00
26	.....	152.33	153.25	152.58	152.33	152.41	152.41	152.25	152.25	151.83	151.58	152.25
27	.....	152.41	153.25	152.66	152.33	152.33	152.41	151.91	152.25	151.83	151.58	152.25
28	.....	152.41	152 66	152.58	152.33	152.33	152.33	151.83	152.25	151.83	151 58	152.25
29	.....	.....	152.66	152.58	152.41	152.33	152 33	151.83	152.25	151.83	151.50	152.25
30	.....	.....	152.66	152.58	152.41	152.33	152.41	152.25	152.00	151.83	151.50	152.25
31	.....	.....	152.66	.....	152.33	.....	152.41	152.25	.....	.....	.....	152.25

ELEVATIONS of River St. Lawrence at Head of Soulanges Canal at Coteau Landing, Que., during the year 1904.

TABLE No. 55.

Day of the month.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	152.25	152.33	152.33	152.75	152.91	152.83	152.83	152.75	152.50	152.66	152.41	151.83
2	152.25	152.33	152.41	152.75	153.00	152.83	152.83	152.83	152.50	152.66	152.41	151.75
3	152.33	152.25	152.50	152.66	152.91	152.83	152.83	152.83	152.50	152.58	152.33	151.75
4	152.33	152.25	152.41	152.75	152.83	152.91	152.83	152.75	152.50	152.58	152.41	151.75
5	152.41	152.25	152.41	152.66	152.83	152.91	152.83	152.75	152.41	152.50	152.33	151.83
6	152.50	152.00	152.50	152.66	152.83	152.91	152.83	152.75	152.41	152.50	152.33	151.83
7	152.50	152.00	152.58	152.58	152.75	153.00	152.83	152.75	152.41	152.50	152.33	151.75
8	152.41	152.25	152.58	152.66	152.91	153.00	152.83	152.66	152.41	152.58	152.25	151.66
9	152.33	152.25	152.58	152.83	152.83	153.00	152.83	152.66	152.33	152.50	152.25	151.66
10	152.41	152.41	152.66	152.83	152.75	153.00	152.83	152.66	152.33	152.66	152.25	151.66
11	152.50	152.41	152.58	152.83	152.75	152.91	152.83	152.58	152.66	152.58	152.00	151.66
12	152.33	152.33	152.41	152.83	152.83	152.91	152.83	152.58	152.66	152.41	152.00	151.66
13	152.25	152.33	152.41	152.91	152.91	152.91	152.83	152.50	152.66	152.25	152.00	151.75
14	152.25	152.25	152.58	152.83	152.83	152.91	152.83	152.50	152.66	152.25	152.00	151.75
15	152.25	152.25	152.58	152.91	152.83	152.91	152.75	152.50	152.58	152.33	152.00	151.75
16	152.25	152.25	152.58	152.91	152.91	152.75	152.91	152.75	152.58	152.41	152.00	151.75
17	152.33	152.25	152.58	153.25	152.66	152.91	152.75	152.58	152.58	152.50	151.91	151.83
18	152.41	152.00	152.58	153.00	152.66	152.91	152.83	152.58	152.58	152.50	151.91	151.83
19	152.41	152.00	152.58	152.91	152.75	152.91	152.83	152.58	152.66	152.41	151.83	151.75
20	152.41	152.00	152.50	152.91	152.75	152.91	152.83	152.58	152.66	152.50	451.83	151.75
21	152.33	151.91	152.58	152.83	152.83	152.91	152.75	152.58	152.58	152.58	151.91	151.75
22	152.33	152.25	152.58	152.83	152.83	152.91	152.75	152.58	152.58	152.58	151.91	151.66
23	152.33	152.25	152.66	152.83	152.91	152.91	152.83	152.50	152.50	152.50	151.91	151.66
24	152.33	152.25	152.75	152.75	152.91	152.91	152.75	152.50	152.33	152.41	151.91	151.75
25	152.33	152.33	153.25	152.91	152.91	152.91	152.66	152.58	152.66	152.41	151.91	151.75
26	152.50	152.33	153.33	152.91	152.91	152.91	152.58	152.58	152.66	152.50	151.91	151.75
27	152.50	152.25	153.50	153.00	152.91	152.91	152.50	152.58	152.58	152.50	151.83	151.83
28	152.41	152.25	153.41	153.00	152.91	152.83	152.33	152.58	152.58	152.58	151.83	151.83
29	152.33	152.33	153.25	153.00	152.91	152.83	152.50	152.83	152.58	152.58	151.83	151.83
30	152.33	.....	153.00	153.00	152.91	152.83	152.50	152.58	152.58	152.50	151.83	151.91
31	152.33	.....	153.00	.....	152.91	.....	152.50	152.50	.....	152.50	.....	151.91

ELEVATIONS of River St. Lawrence at Head of Soulanges Canal at Coteau Landing, Que., during the year 1905.

TABLE No. 56.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	152.00	151.75	151.91	152.91	152.00	152.25	152.58	152.50	152.33	152.33	152.25	152.25
2	152.00	151.83	151.91	152.83	152.00	152.25	152.75	152.50	152.33	152.33	152.25	151.91
3	152.25	151.83	151.83	152.75	152.00	152.00	152.91	152.50	152.33	152.33	152.00	151.83
4	152.25	151.83	151.75	152.58	152.00	152.25	152.75	152.41	152.41	152.33	152.25	151.83
5	152.00	151.75	151.75	152.41	152.00	152.00	152.75	152.41	152.41	152.33	152.25	151.83
6	152.00	151.83	151.75	152.50	152.00	151.91	152.66	152.50	152.50	152.33	152.25	151.91
7	152.00	151.91	151.66	152.58	152.00	151.91	152.50	152.50	152.50	152.33	152.25	151.75
8	152.00	152.00	151.75	152.66	152.25	151.91	152.41	152.50	152.41	152.33	152.25	151.75
9	152.00	152.00	151.66	152.50	152.25	151.91	152.50	152.50	152.41	152.33	152.33	151.75
10	152.00	152.25	151.58	152.50	152.25	151.91	152.41	152.50	152.41	152.25	152.25	151.91
11	152.00	152.25	151.66	152.58	152.25	151.91	152.41	152.50	152.33	152.25	152.33	151.75
12	152.00	152.00	151.66	152.58	152.25	152.33	152.50	152.50	152.33	152.25	152.33	151.75
13	151.91	152.00	151.58	152.58	152.00	152.33	152.50	152.50	152.33	152.25	152.25	151.75
14	151.91	152.25	151.58	152.50	152.00	152.41	152.50	152.41	152.41	152.33	152.25	151.75
15	151.91	152.25	151.66	152.50	152.25	152.41	152.58	152.41	152.41	152.25	152.33	151.66
16	151.83	152.25	151.58	152.50	152.25	152.41	152.58	152.41	152.50	152.25	152.41	151.66
17	151.83	152.00	151.50	152.50	152.25	152.41	152.50	152.41	152.50	152.33	152.25	151.75
18	151.83	152.00	151.50	152.41	132.25	152.41	152.58	152.41	152.58	152.25	152.00	151.75
19	151.91	152.00	151.58	152.41	152.25	152.41	152.58	152.41	152.50	152.25	152.00	151.75
20	151.83	152.25	151.50	152.41	152.25	152.41	152.50	152.41	152.50	152.33	152.00	151.83
21	151.83	152.25	151.58	152.33	152.00	152.33	152.41	152.50	152.41	152.50	151.91	151.75
22	151.83	152.00	151.41	152.33	152.00	152.25	152.33	152.50	152.41	152.41	152.25	151.91
23	151.83	152.00	151.41	152.25	152.25	152.25	152.33	152.58	152.50	152.41	152.25	151.91
24	151.91	152.00	151.41	152.25	152.25	152.25	152.41	152.50	152.50	152.33	152.25	151.83
25	152.00	152.00	151.41	152.00	151.91	152.25	152.50	152.41	152.50	152.33	152.33	151.91
26	151.91	152.00	151.58	152.25	152.00	152.33	152.58	152.41	152.41	152.25	152.00	152.00
27	151.83	152.00	151.83	152.00	152.00	152.41	152.58	152.41	152.41	152.25	152.00	152.00
28	152.83	152.00	152.00	152.25	152.00	152.50	152.58	152.41	152.41	152.33	151.66	151.75
29	152.83	.....	152.00	152.00	152.25	152.58	152.58	152.50	152.41	152.25	152.25	152.25
30	152.75	.....	152.41	152.00	152.25	152.58	152.50	152.41	152.41	152.00	152.25	152.33
31	152.75	.....	152.41	.....	152.00	.....	152.50	152.33	.....	152.25	.....	152.25

ELEVATIONS of River St. Lawrence at Head of Soulanges Canal at Coteau Landing, Que., during the year 1906.

TABLE No. 57.

Day of the month.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	152.33	152.25	152.33	152.33	151.91	151.91	152.00	151.91	151.75	151.50	151.50	151.41
2	152.25	152.25	152.33	152.25	151.91	151.91	151.91	151.91	151.66	151.41	151.41	151.41
3	152.00	152.00	152.33	152.25	152.00	151.91	151.91	151.91	151.66	151.41	151.58	151.33
4	152.25	152.00	152.33	152.25	152.00	151.91	152.00	151.91	151.75	151.50	151.50	151.58
5	152.25	152.25	152.25	152.25	152.00	151.91	152.00	151.91	151.75	151.41	151.50	151.50
6	152.33	152.00	152.25	152.25	152.00	151.91	152.00	151.91	151.75	151.50	151.50	151.58
7	152.25	152.00	152.25	152.25	152.00	151.91	152.00	151.91	151.66	151.41	151.50	151.41
8	152.25	152.25	152.25	152.25	152.00	151.91	152.00	151.91	151.66	151.50	151.41	151.50
9	152.00	152.33	152.25	151.91	152.00	152.00	152.00	151.91	151.75	151.66	151.41	151.50
10	152.00	152.41	152.33	151.91	152.00	152.25	152.00	151.91	151.75	151.66	151.33	151.58
11	152.41	152.41	152.25	152.00	152.00	152.25	152.00	151.91	151.75	151.58	151.25	151.50
12	152.66	152.50	152.25	152.25	152.00	152.25	152.00	151.91	151.75	151.58	151.41	151.50
13	152.75	152.41	152.33	152.25	152.00	152.25	151.91	151.91	151.75	151.50	151.41	151.58
14	152.75	152.33	152.33	152.33	152.00	152.00	152.00	151.91	151.83	151.41	151.25	151.66
15	152.75	152.25	152.33	152.41	152.00	152.00	151.91	131.91	151.75	151.41	151.25	151.66
16	152.66	152.00	152.25	152.58	152.00	152.00	151.91	151.91	151.75	151.41	151.33	151.58
17	152.66	152.25	152.25	152.50	152.25	152.00	152.00	151.83	151.75	151.50	151.33	151.58
18	152.58	152.25	152.25	152.50	152.00	152.00	151.91	151.91	151.66	151.41	151.33	151.58
19	152.66	152.25	152.33	152.00	152.00	152.00	151.91	151.83	151.58	151.41	151.41	151.58
20	152.66	152.25	152.33	152.00	152.00	152.00	151.91	151.83	151.41	151.50	151.41	151.50
21	152.58	152.33	152.33	152.00	152.00	151.91	151.91	151.91	151.41	151.41	151.41	151.50
22	152.58	152.25	152.41	152.00	152.00	151.91	152.00	151.91	151.50	151.41	151.75	151.50
23	152.58	152.25	152.41	152.00	152.00	151.91	152.00	151.91	151.50	151.41	151.66	151.50
24	152.91	152.25	152.33	152.00	151.91	152.00	152.00	151.83	151.50	151.41	151.50	151.50
25	152.83	152.00	152.25	152.00	151.91	152.00	152.00	151.66	151.50	151.75	151.50	151.58
26	152.58	152.25	152.00	152.00	152.00	152.00	151.91	151.58	151.50	151.66	151.50	151.58
27	152.58	152.25	152.00	152.00	151.91	152.00	151.91	151.66	151.50	151.66	151.58	151.58
28	152.58	152.25	152.33	151.91	151.91	152.00	151.91	151.58	151.50	151.66	151.58	151.66
29	152.50	.....	152.41	151.91	151.75	152.00	151.91	151.66	151.41	151.75	151.58	151.66
30	152.33	.....	152.41	151.91	151.83	152.00	151.91	151.83	151.58	151.66	151.58	151.66
31	152.25	.....	152.41	.....	151.91	.....	151.91	151.75	.....	151.41	.....	151.58

ELEVATIONS of River St. Lawrence at Head of Soulanges Canal at Coteau Landing, Que., during the year 1907.

TABLE No. 58.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	151.66	151.66	151.58	153.33	152.75	152.33	152.50	152.33	152.00	151.66	151.91	151.75
2	151.58	151.58	151.75	153.00	152.83	152.41	152.50	152.41	152.00	151.66	151.91	151.75
3	151.83	151.83	151.66	153.00	152.75	152.58	152.50	152.33	152.00	151.66	151.91	151.91
4	151.83	151.83	151.66	153.75	152.58	152.50	152.50	152.33	152.00	151.83	151.91	151.91
5	152.00	152.00	151.66	153.66	152.75	152.33	152.41	152.25	151.91	151.83	151.91	151.75
6	151.91	151.91	151.58	153.58	152.83	152.50	152.33	152.25	151.91	151.91	151.91	151.83
7	151.91	151.91	151.66	153.58	152.83	152.58	152.33	152.41	151.91	151.91	151.91	151.83
8	151.91	151.91	151.66	153.58	152.66	152.50	152.33	152.41	151.91	151.91	151.83	151.91
9	152.00	152.00	151.58	153.58	152.58	152.50	152.33	152.33	151.83	151.91	151.83	152.00
10	151.91	151.91	151.66	153.50	152.58	152.33	152.25	152.33	151.83	152.00	151.91	152.00
11	151.91	151.91	151.66	153.41	152.58	152.33	152.33	152.33	151.83	152.00	151.91	152.25
12	151.91	151.91	151.66	153.41	152.41	152.33	152.33	152.33	151.91	152.00	151.91	152.25
13	152.00	152.00	151.75	153.50	152.41	152.33	152.25	152.41	151.91	152.00	151.91	152.25
14	151.91	151.91	151.75	153.58	152.41	152.41	152.33	152.33	151.91	152.00	151.91	151.91
15	152.00	152.00	151.75	153.50	152.41	152.41	152.33	152.41	151.91	151.91	151.91	151.83
16	152.00	152.00	151.75	153.58	152.41	152.41	152.33	152.33	151.91	152.00	151.91	151.75
17	151.75	151.58	151.83	153.58	152.41	152.41	152.33	152.41	151.91	152.00	151.91	151.83
18	151.50	151.58	151.83	153.66	152.41	152.50	152.33	152.33	151.91	152.00	152.00	151.83
19	151.41	151.66	151.75	153.66	152.33	152.41	152.25	152.33	151.83	151.91	152.00	151.75
20	151.75	151.83	151.75	153.66	152.33	152.33	152.25	152.33	151.91	152.00	151.83	151.91
21	151.91	151.83	151.75	153.66	152.41	152.33	152.25	152.33	151.91	152.00	151.83	151.83
22	151.75	151.75	151.66	153.58	152.50	152.25	152.25	152.33	152.00	151.91	151.83	151.83
23	151.83	151.75	151.83	153.50	152.41	152.25	152.25	152.33	152.00	151.91	151.75	151.75
24	151.83	151.66	151.75	153.50	152.41	152.25	152.00	152.41	152.00	152.00	151.75	151.83
25	151.66	151.66	151.75	153.41	152.33	152.25	152.25	152.41	152.00	151.91	151.75	151.83
26	151.66	151.75	151.83	153.25	152.41	152.25	152.41	152.41	152.00	152.00	151.83	151.91
27	151.66	151.66	152.00	153.33	152.66	152.50	152.41	152.41	151.83	152.00	151.83	151.83
28	151.66	151.58	152.41	153.25	152.75	152.41	152.33	152.33	151.83	151.91	151.66	152.50
29	151.75	.....	152.66	153.25	152.58	152.33	152.33	152.33	151.50	151.91	151.66	152.58
30	151.83	.....	153.00	153.25	152.50	152.33	152.41	152.25	151.58	151.83	151.66	152.50
31	151.75	.....	153.25	.....	152.41	.....	152.41	152.00	.....	151.83	.....	152.58

ELEVATIONS of River St. Lawrence at Head of Soulanges Canal at Coteau Landing, Que., during the year 1908.

TABLE No. 59.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	152.58	151.66	151.83	153.33	153.91	153.91	153.58	153.00	152.75	152.33	151.75	151.75
2	152.58	151.83	151.91	153.66	153.75	153.91	153.50	153.00	152.75	152.33	151.75	151.75
3	152.50	151.91	151.83	153.83	153.83	153.91	153.50	153.00	152.75	152.33	151.83	151.75
4	152.50	151.58	151.83	153.83	153.91	153.83	153.50	153.00	152.75	152.25	151.91	151.83
5	152.50	151.66	151.83	153.50	153.83	153.91	153.50	153.00	152.75	152.00	151.91	151.75
6	152.58	151.66	151.83	153.66	153.75	153.91	153.50	153.00	152.75	152.00	151.91	151.58
7	152.66	151.66	151.83	153.58	153.58	153.91	153.50	153.00	152.75	151.91	151.83	151.25
8	152.66	151.66	151.91	153.58	153.58	153.91	153.66	153.00	152.75	151.91	151.91	151.41
9	152.50	151.66	151.91	153.41	153.75	153.91	153.58	153.00	152.66	151.91	151.75	151.25
10	152.66	151.58	151.91	153.41	154.00	153.91	153.50	153.00	152.66	152.00	151.66	151.41
11	153.58	151.66	152.33	153.75	154.00	153.83	153.58	152.91	152.58	152.00	151.66	150.91
12	153.41	151.66	152.25	154.00	154.25	153.83	153.58	152.91	152.58	152.00	151.83	151.25
13	155.00	151.66	152.33	153.25	154.25	153.83	153.66	152.91	152.58	152.25	151.75	151.25
14	153.00	151.75	152.33	153.75	154.00	153.83	153.66	152.91	152.58	152.00	151.75	151.41
15	153.00	151.75	152.66	153.75	154.00	153.50	153.58	152.91	152.50	152.00	151.91	151.25
16	154.58	151.83	152.66	153.75	154.00	153.50	153.50	152.91	152.50	151.91	151.91	151.33
17	154.50	151.75	152.66	153.41	154.00	153.50	153.33	153.00	152.33	151.91	151.83	151.00
18	154.25	151.75	152.66	153.41	154.00	153.50	153.25	153.00	152.33	151.91	151.75	150.66
19	153.00	151.75	152.66	153.33	153.83	153.50	153.33	153.00	152.33	151.83	151.75	151.00
20	152.58	151.75	152.58	153.50	153.83	153.58	153.41	153.00	152.33	151.75	151.75	151.41
21	152.50	151.91	152.66	153.33	153.91	153.50	153.25	153.00	152.41	151.75	151.66	151.41
22	151.58	152.00	152.58	153.25	153.75	153.50	153.33	153.00	152.41	151.75	151.58	151.50
23	152.25	152.00	152.58	153.25	153.91	153.50	153.33	152.91	152.25	151.75	151.58	151.41
24	151.91	151.91	152.58	153.25	153.91	153.66	153.33	152.83	152.25	151.75	151.50	151.25
25	151.58	151.83	152.75	153.25	153.91	153.66	153.33	152.83	152.25	151.75	151.50	151.50
26	151.58	151.83	152.66	153.41	153.91	153.66	153.25	152.75	152.25	151.75	151.58	151.50
27	151.75	151.83	152.75	153.33	153.91	153.66	153.25	152.75	152.33	151.75	151.75	151.75
28	151.66	151.83	152.58	153.33	153.91	153.58	153.25	152.75	152.33	151.75	151.75	151.75
29	151.50	151.83	153.25	153.41	153.91	153.58	153.25	152.75	152.41	151.75	151.75	151.50
30	151.66	.....	153.50	153.50	153.83	153.58	153.00	152.75	152.41	151.75	151.75	151.25
31	151.66	.....	153.25	.....	153.91	.....	152.91	152.66	.....	151.75	.....	151.50

ELEVATIONS of River St. Lawrence at Head of Soulanges Canal at Coteau Landing, Que., during the year 1909.

TABLE No. 60.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	151.66	152.25	151.58	152.00	152.25	152.58	152.25	152.25	151.91	151.58	151.33	151.25
2	151.54	152.41	151.41	152.00	152.33	152.58	152.25	152.00	151.91	151.58	151.25	150.83
3	151.54	152.41	151.41	152.00	152.75	152.58	152.25	152.00	151.91	151.58	151.41	150.75
4	151.25	152.41	151.41	152.25	152.66	152.50	152.25	152.00	151.91	151.58	151.50	150.91
5	151.25	152.25	151.58	152.33	152.58	152.50	152.25	152.00	151.91	151.58	151.41	151.25
6	151.25	152.33	152.00	152.41	152.41	152.50	152.33	152.00	151.91	151.58	151.41	151.25
7	151.25	152.33	151.83	152.58	152.25	152.50	152.41	152.25	151.91	151.58	151.41	151.00
8	151.75	151.58	151.66	152.91	152.41	152.50	152.25	152.25	151.91	151.58	151.33	151.25
9	151.83	151.66	151.75	152.75	152.41	152.33	152.33	152.25	151.75	151.58	151.25	151.25
10	151.33	151.25	151.58	152.66	152.50	152.33	152.25	152.00	151.66	151.58	151.25	151.58
11	151.50	151.50	151.58	152.50	152.58	152.41	152.33	152.00	151.75	151.58	151.25	151.41
12	151.41	151.66	151.83	152.25	152.83	152.41	152.33	151.91	151.75	151.58	151.33	151.25
13	152.00	151.58	151.66	152.00	152.83	152.50	152.33	151.91	151.75	151.75	151.25	150.83
14	151.91	151.41	151.58	152.00	152.75	152.50	152.41	151.91	151.75	151.75	151.25	151.25
15	151.58	151.25	151.66	152.00	152.66	152.50	152.33	151.91	151.75	151.75	151.25	151.58
16	151.83	150.91	151.66	152.25	152.66	152.50	152.33	151.91	151.75	151.66	151.25	151.58
17	151.66	150.66	151.66	152.25	152.75	152.50	152.41	151.91	151.75	151.66	151.25	151.58
18	151.33	151.25	151.83	152.25	152.75	152.50	152.33	151.91	151.75	151.66	151.33	151.58
19	151.66	150.91	151.75	151.83	152.66	152.50	152.41	151.91	151.75	151.58	151.25	151.58
20	151.75	150.75	151.58	152.00	152.66	152.50	152.33	151.91	151.75	151.58	151.25	151.66
21	151.75	151.00	151.75	152.00	152.58	152.50	152.25	151.91	151.58	151.25	151.33	151.75
22	151.50	151.00	151.58	152.41	152.58	152.58	152.25	151.91	151.58	151.58	150.75	151.75
23	151.25	150.91	151.58	152.41	152.58	152.58	152.25	151.91	151.66	151.66	151.25	151.58
24	131.50	150.91	151.58	152.33	152.58	152.58	152.33	151.91	151.66	151.58	150.91	151.41
25	151.41	151.41	151.41	152.33	152.58	152.58	152.33	151.91	151.66	151.58	151.00	151.25
26	151.58	151.66	151.66	152.33	152.58	152.58	152.33	152.00	151.58	151.58	151.25	151.00
27	151.58	151.58	151.66	152.25	152.58	152.58	152.33	152.00	151.58	151.58	151.25	151.25
28	151.58	151.58	151.83	152.00	152.50	152.41	152.33	151.91	151.58	150.58	151.25	152.25
29	151.66	.....	151.83	151.91	152.66	152.25	152.33	151.91	151.58	151.58	151.25	151.25
30	151.91	.....	151.91	151.75	152.66	152.25	152.25	151.91	151.58	151.58	151.25	151.41
31	151.91	.....	151.91	.....	152.58	.....	152.25	151.91	.....	151.41	.....	151.75

ELEVATION of River St. Lawrence at Head of Soulanges Canal, at Coteau Landing, Que., during the year 1910.

TABLE No. 61.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	151.83	151.41	150.75	152.00	152.00	152.33	151.00	152.00	151.58	151.58	151.41	151.00
2	151.91	151.41	151.25	152.00	152.00	152.33	151.00	152.00	151.58	151.50	151.41	151.00
3	151.91	151.25	151.41	151.91	152.00	152.25	151.00	151.91	151.58	151.41	151.33	151.25
4	151.91	151.25	151.75	151.91	152.00	152.25	151.00	151.91	151.66	151.58	151.25	151.00
5	151.50	151.41	151.83	151.83	152.33	152.25	152.00	151.91	151.58	151.50	151.25	151.91
6	151.66	151.41	151.75	151.83	152.41	152.25	152.00	151.91	151.50	151.50	151.25	151.83
7	151.66	151.66	151.91	152.00	152.50	152.25	151.91	152.00	151.66	151.50	151.33	151.83
8	151.66	151.66	152.25	152.00	152.58	152.25	151.91	152.00	151.75	151.41	151.41	151.00
9	151.58	151.41	152.33	151.91	152.50	152.25	151.91	151.83	151.83	151.50	151.41	151.25
10	151.41	151.41	152.25	152.00	152.58	152.25	152.00	151.91	151.83	151.50	150.83	151.25
11	151.58	151.58	151.83	152.00	152.58	152.25	152.25	151.91	151.83	151.50	151.41	151.00
12	151.58	151.41	151.83	152.00	152.50	152.25	152.25	151.91	151.75	151.50	151.33	150.91
13	151.58	151.41	151.75	152.00	152.41	152.25	152.00	151.91	151.66	151.50	151.33	151.25
14	151.25	151.58	151.91	152.00	152.25	152.25	152.25	151.91	151.66	151.41	151.41	151.25
15	151.58	151.25	151.75	151.91	152.25	152.33	152.00	151.83	151.66	151.66	151.41	151.00
16	151.75	151.33	151.91	151.83	152.00	152.33	152.00	151.83	151.58	151.41	151.41	151.00
17	151.66	151.41	151.91	151.83	152.00	152.25	152.00	151.75	151.50	151.41	151.41	151.00
18	151.50	151.41	151.91	151.75	152.25	152.25	151.91	151.75	151.50	151.33	151.41	150.91
19	151.25	151.25	151.91	151.83	152.25	152.25	151.83	151.75	151.41	151.41	151.41	151.25
20	151.25	151.00	151.91	151.91	152.25	152.33	151.83	151.75	151.50	151.33	151.33	151.41
21	151.00	150.91	152.25	151.91	152.25	152.25	151.83	151.75	151.58	151.00	150.91	151.50
22	151.00	150.83	152.25	151.91	152.25	152.25	151.83	151.91	151.58	151.25	150.91	151.58
23	151.41	150.75	152.25	151.83	152.25	152.25	151.83	151.83	151.41	151.25	150.91	151.66
24	151.41	150.58	152.25	151.75	152.33	152.25	151.83	151.83	151.33	151.33	151.00	151.91
25	151.41	150.58	152.33	151.75	152.41	152.00	151.83	151.83	151.58	151.33	151.25	151.91
26	151.41	150.91	152.41	151.75	152.41	152.00	151.91	151.83	151.41	151.33	151.00	151.83
27	151.41	150.91	152.41	151.91	152.33	152.00	151.91	151.83	151.33	151.25	150.91	151.66
28	151.58	150.83	152.41	151.91	152.33	152.00	152.25	151.83	151.50	151.41	150.75	151.58
29	151.41	.....	152.50	151.83	152.33	152.00	151.91	151.75	151.50	151.41	150.75	151.25
30	151.41	.....	151.91	151.91	152.33	152.00	151.91	151.75	151.50	151.41	150.75	151.25
31	151.41	.....	152.00	.....	152.33	.....	151.91	151.75	.....	151.41	.....	151.25

ELEVATIONS of River St. Lawrence at Head of Soulanges Canal, Coteau Landing, Que., during the year 1911.

TABLE No. 62.

Day of the month.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	151.66	151.58	151.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	151.58	151.41	151.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	151.50	151.41	151.41	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	151.33	151.50	151.41	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	151.41	151.66	151.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	151.25	151.58	151.41	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	151.25	151.50	151.41	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	151.58	151.50	151.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	151.66	151.50	151.33	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	151.58	151.33	151.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	151.58	151.25	151.25	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	151.41	151.00	151.25	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	151.25	151.00	151.25	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	151.25	151.00	151.25	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	151.58	151.00	151.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	151.91	151.00	151.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	151.83	151.25	151.41	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	151.58	151.41	151.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	151.50	151.41	151.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	151.33	151.33	151.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	151.00	151.25	151.41	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	151.33	151.58	151.25	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	151.25	151.66	151.41	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	151.33	151.58	151.58	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	151.00	151.50	151.41	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	150.83	151.41	151.41	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	150.91	151.50	151.33	.....	.....	.....	.....	.....	.....	.....	.....	.....
28	151.00	151.50	151.66	.....	.....	.....	.....	.....	.....	.....	.....	.....
29	151.50	.....	152.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	151.58	.....	152.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
31	151.75	.....	152.00	.....	.....	.....	.....	.....	.....	.....	.....	.....

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1890.

TABLE No. 63.

Day of the month.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.11	74.78	73.95	71.36	72.28	73.11	72.36	70.70	70.11	69.70	69.36	69.03
2	69.20	74.70	73.95	71.36	72.28	73.11	72.36	70.53	70.11	69.70	69.28	69.03
3	69 20	74 86	73.95	71.28	72.45	73.11	72.28	70.45	70.03	69.78	69.20	69.03
4	69.28	74.86	73.86	71.28	72.61	73.20	72.20	70.45	70.03	69.86	69.11	69.11
5	69.28	74.70	73.86	71.20	72.86	73.28	72.20	70.45	70.03	69.78	69.11	69.11
6	69.28	75.03	73.78	71.20	73.03	73.28	72 20	70.45	70.11	69.70	69.11	69.11
7	69.36	75.20	72.70	71.28	73.20	73.36	72.11	70.53	70.11	69.70	69.03	69.11
8	69.53	75.20	73.53	71.28	73.36	73.36	72.11	70.45	70.03	69.61	69.03	69.20
9	69.53	75.53	73.45	71.53	72.45	73.28	72.03	70.36	70.03	69.61	69.03	69.20
10	69.70	75.61	73.36	71.61	73.45	73.28	71.95	70.36	70.03	69.53	69.03	69.20
11	69.86	75 53	73.36	71.70	73.53	73 36	71.78	70.28	79.11	69.53	68.95	69.36
12	70.20	75.70	73.28	71.86	73.53	73.36	71.70	70.20	70.11	69.53	68.95	69.61
13	70.36	74.86	73.28	72.11	73.36	73.28	71.53	70.20	70.03	69.45	68.95	69.61
14	70.70	73.95	73.28	72.28	73.20	73.28	71.45	70.11	70.03	69.45	68.86	69.61
15	70.86	73.95	73.28	72 11	73.03	73.36	71.36	70.11	70 11	69.36	68.86	69.61
16	70.95	74 11	73.20	72.03	73.20	73.45	71.28	70.11	70.11	69.36	68.86	69.61
17	71.11	74.11	73.11	72.20	73.36	73.36	71 20	70.03	70.20	69.45	69.03	70.70
18	71.11	74.28	73.11	72.20	73.45	73.36	71.20	70.03	70.20	69.45	69.03	70.70
19	71.28	75.70	73.03	72.11	73.45	73.28	71.11	70.11	70.20	69.53	69.20	71.20
20	71.28	76.20	72.95	72.03	73.53	73.28	71.03	70.11	70.11	69.61	69.20	71.70
21	71.36	75.95	72.95	72.20	73.53	73.20	71.03	70.20	70.11	69.70	69.20	72.20
22	72.20	74.70	72.86	72.03	73.61	73 20	70.95	70.20	70.03	69.78	69.28	72.53
23	72.20	74.70	72.70	71.86	73.53	73.11	70.95	70.11	70.11	69.78	69.28	72.53
24	73.20	74.70	72.70	71.70	73.53	73.11	70.78	70 11	70.03	69.86	69.28	72.70
25	73.70	74.20	72.53	71.70	73.61	73.03	70.86	70.03	69.95	69.86	69.20	73.36
26	73.61	73.95	72.36	71.78	73.45	72.95	70.95	70.03	69.95	69.86	69.11	73.53
27	74.20	73.86	72.20	71.86	73.36	72.70	71.03	70.03	69.86	69.95	69.11	73.53
28	74.70	73.70	72 03	72.03	73.20	72.53	70.86	70.03	69.86	69.86	69.03	72.70
29	74 70	.....	71.70	72.20	73.20	72.53	70.70	70.11	69.78	69.70	69.03	73.70
30	74.20	.....	71.53	72.28	73.11	72.45	70.70	70.11	69.70	69.53	69.03	74.20
31	74.45	.....	71.28	.....	73.11	.....	70.61	70.20	.....	69.45	.....	74.53

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1891.

TABLE No. 64.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	74.53	75.86	74.28	72.70	73.45	71.28	69.78	69.61	69.28	68.70	68.11	68 36
2	74.70	75.86	74.28	72.70	73.45	71.28	69.78	69.61	69.28	68.70	68.11	68.53
3	75.20	75.70	74.36	72.78	73.36	71.20	69.70	69.70	69.20	68.70	68.11	68.53
4	75.03	76.11	74.28	72.36	73.36	71.20	69.70	69.70	69.20	68.70	68.03	68.61
5	74.70	76.36	74.95	72.20	73.36	71.11	69.78	69.78	69.11	68.53	68.03	68.78
6	73.70	76.45	75.53	72.03	73.28	71.03	69.78	69 70	69.20	68.53	68.03	68.95
7	73.70	76.53	75.20	71.95	73.28	71.03	69 70	69.70	69.11	68.45	67.70	68.86
8	74.20	76.53	74.36	71.70	73.03	70.95	69.70	69.70	69.11	68.45	67.70	68.86
9	74.45	76.61	74 28	71.70	72.86	70.86	69.70	69.70	69.03	68.36	67 78	68.86
10	74.20	76 61	74.20	71.70	72.78	70.70	69.70	69.70	69.03	68.36	67 70	68.86
11	74.03	77.36	74.11	71.70	72 53	70.70	69.70	69.61	69.03	68.28	67.45	68.86
12	74.03	76.20	74.11	71.78	72.45	70.61	69.61	69.61	68.95	68.28	67.45	68.86
13	74.36	76.70	74.03	71.95	72.28	70 53	69.61	69.53	68.95	68.28	67.53	69.03
14	76.03	76.86	74.20	72.03	72.28	70.53	69.53	69.61	69.03	68.20	67.53	69.11
15	75.70	76.70	74 20	72.20	72.36	70.45	69 53	69.61	68.95	68.20	67.36	69.11
16	76.20	76.70	74.20	72.28	72.36	70.36	69.53	69.61	68.95	68.11	67.45	69.20
17	76.20	76.36	73.78	72.28	72.28	70.28	69.53	69.61	69.03	68.03	67.53	69.28
18	76.70	76.20	73.78	72.28	72.28	70.20	69.53	69.53	68.95	68.03	67.53	69.28
19	75.70	76.20	73.70	72.36	72.20	70.11	69.53	69.53	68.86	68.03	67.70	69.36
20	75.70	76.03	73.70	72.36	72.20	70.11	69.45	69.45	68.86	68.11	67.78	69.36
21	75.20	76.03	73.53	72.36	72.11	70.11	69.53	69.61	68.86	68.11	67.86	69.36
22	75 20	75.36	73.11	72.45	72.11	70.03	69.53	69.78	68.78	68.03	67.95	69.36
23	75.36	75.11	72.78	72.45	72.11	70.03	69.45	69.78	68.78	68.03	67.95	69.36
24	75.36	74.95	73.03	72.61	72.03	70.03	69.45	69.78	68.70	68.11	68.03	69.36
25	75.53	74.70	73.11	72.95	71.95	69.95	69.50	69.78	68.70	68.03	68.03	69.45
26	75.53	74.20	73.36	73.11	71.95	69.95	69.53	69.70	68.70	68.03	68.11	69.45
27	75.53	73.95	73.03	73.28	71.86	69.95	69.53	69.61	68.78	68.11	68.11	69.45
28	75.61	73.95	73.03	73.36	71.78	69.86	69.45	69.53	68.70	68.11	68.20	69.45
29	75.61	.....	72.95	73.53	71.53	69.86	69.45	69.36	68.70	68.11	68.20	69.45
30	75.70	.....	72.95	73.53	71.45	69.78	69.45	69.28	68.70	68.11	68.28	69.45
31	75.70	.....	73.03	.....	71.36	.....	69.45	69.36	.....	68.11	.....	69.53

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1892.

TABLE No. 65.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.61	72.11	73.36	70.11	68.95	70.11	71.53	69.95	70.11	68.70	68.28	69.78
2	69.61	71.70	73.03	70.20	68.95	70.20	71.53	70.03	69.86	68.70	68.28	69.78
3	69.61	71.70	73.70	70.70	70.03	70.28	71.61	69.86	69.95	68.70	68.36	69.78
4	69.70	71.95	73.78	71.53	70.03	70.11	71.61	69.95	69.78	68.70	68.28	69.70
5	69.86	71.70	73.95	72.20	70.11	70.03	71.61	70.03	69.70	68.70	68.20	69.70
6	69.95	71.86	73.20	71.70	70.11	70.03	71.70	70.11	69.70	68.70	68.20	69.70
7	70.11	71.86	72.03	71.86	70.20	69.95	71.45	70.28	69.70	68.70	68.28	69.78
8	70.28	72.03	71.36	71.78	70.28	69.95	71.28	70.20	69.53	68.70	68.36	69.86
9	70.36	72.03	71.36	71.70	70.36	70.03	71.11	70.11	69.45	68.70	68.36	69.86
10	70.53	71.95	71.45	71.70	70.53	69.86	70.95	70.11	69.28	68.70	68.45	69.86
11	70.61	72.03	71.28	71.53	69.70	69.86	70.86	70.03	69.20	68.70	68.36	69.78
12	70.61	72.11	71.36	71.36	69.53	69.78	70.70	69.95	69.28	68.61	68.36	69.86
13	70.36	72.61	71.53	71.20	69.53	69.70	70.53	69.86	69.20	68.53	68.36	69.86
14	70.45	73.03	71.53	70.95	69.45	69.70	70.45	70.03	69.11	68.53	68.36	69.78
15	70.70	72.20	72.36	70.70	69.36	69.70	70.36	70.28	69.11	68.53	68.28	69.86
16	70.86	72.78	72.11	70.36	69.28	69.78	70.36	70.11	69.11	68.53	68.36	69.95
17	71.20	72.70	71.70	70.03	69.28	69.78	70.36	69.95	69.03	68.45	68.70	69.86
18	71.36	71.86	71.36	69.86	69.20	69.86	70.28	69.86	69.03	68.45	68.86	69.86
19	71.36	71.70	71.03	69.70	69.20	70.36	70.28	69.95	69.03	68.36	68.95	69.95
20	71.53	71.70	70.70	69.70	69.11	71.20	70.28	70.03	68.95	68.36	69.11	69.95
21	71.70	71.78	70.70	69.70	69.20	71.53	70.20	70.03	68.95	68.36	69.11	69.86
22	71.86	71.86	70.36	69.86	69.20	71.61	70.20	70.03	68.95	68.45	69.20	69.86
23	72.20	71.70	70.20	70.03	69.11	71.53	70.20	70.36	69.03	68.36	69.28	69.95
24	72.20	71.70	70.03	69.70	69.20	71.45	70.20	70.45	69.03	68.36	69.28	69.95
25	72.36	71.70	69.86	69.53	69.28	71.45	70.11	70.45	68.95	68.28	69.36	70.03
26	72.03	71.78	69.70	69.61	69.53	71.36	70.11	70.45	68.95	68.28	69.36	70.03
27	72.28	71.86	69.95	69.36	69.61	71.45	70.11	70.53	68.86	68.20	69.53	70.03
28	72.11	72.78	69.86	69.20	69.86	71.36	70.03	70.45	68.86	68.20	69.53	70.11
29	71.95	72.86	69.70	69.03	69.95	71.53	69.86	70.36	68.86	68.28	69.61	70.36
30	71.70	.....	69.70	69.03	70.03	71.45	69.86	70.28	68.78	68.28	69.70	70.53
31	71.95	.....	70.03	68.95	70.03	.....	69.78	70.28	.....	68.28	.....	70.61

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1893.

TABLE No. 66.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	70.70	74.36	73.70	74.03	74.28	73.95	71.45	70.78	70.03	68.53	68.28	68.45
2	71.20	74.70	74.03	74.11	74.03	73.86	71.45	70.70	70.20	68.53	68.28	68.53
3	71.36	75.20	74.03	74.20	73.95	73.70	71.36	70.70	70.36	68.45	68.20	68.70
4	71.36	75.61	74.20	74.20	74.36	73.70	71.36	70.70	70.53	68.45	68.20	68.86
5	71.53	75.03	74.11	74.28	74.95	73.70	71.28	70.61	71.20	68.36	68.20	69.03
6	71.53	75.70	74.11	74.20	75.20	73.53	71.28	70.53	71.53	68.36	68.28	69.20
7	71.61	75.70	74.03	74.28	75.28	73.53	71.28	70.53	71.45	68.28	68.28	69.45
8	72.53	76.03	73.78	74.36	75.36	73.36	71.28	70.53	71.36	68.28	68.36	69.53
9	73.03	75.86	73.70	74.28	75.20	73.28	71.36	70.45	71.11	68.36	68.36	70.11
10	73.95	75.70	73.70	74.20	75.11	73.28	71.28	70.45	70.95	68.36	68.36	70.36
11	74.28	75.03	73.70	74.20	75.03	73.20	71.28	70.45	70.70	68.45	68.36	70.53
12	74.03	74.70	73.70	74.20	75.11	73.20	71.20	70.28	70.53	68.45	68.36	71.03
13	73.86	74.53	73.86	74.36	75.20	73.11	71.20	70.28	70.36	68.45	68.36	71.03
14	73.70	75.20	73.95	74.45	75.28	73.03	71.20	70.20	70.20	68.36	68.36	71.36
15	73.70	74.36	73.86	74.45	75.20	73.03	71.20	70.20	69.95	68.95	68.45	71.53
16	73.70	75.36	73.70	74.36	75.36	72.95	71.20	70.11	69.78	69.03	68.36	71.61
17	73.86	75.03	73.86	74.36	75.28	72.70	71.11	70.11	69.70	68.95	68.36	71.70
18	74.03	74.86	73.95	74.28	75.20	72.53	71.11	70.03	69.45	68.86	68.36	72.70
19	73.86	75.03	73.86	74.36	75.45	72.45	71.11	70.03	69.45	68.53	68.28	72.20
20	73.86	75.53	73.86	74.28	75.70	72.28	71.11	70.03	69.36	68.45	68.28	73.36
21	73.95	75.36	74.03	74.20	75.36	72.28	71.11	69.95	69.28	68.36	68.28	72.70
22	73.95	74.61	74.20	74.20	74.70	72.20	71.11	68.70	69.28	68.36	68.28	72.70
23	73.95	74.28	74.03	74.28	74.70	72.20	71.03	68.70	69.11	68.28	68.20	73.20
24	74.20	73.86	73.95	74.36	74.53	72.03	71.03	68.70	69.03	68.28	68.20	73.36
25	74.36	73.70	73.95	74.36	74.36	71.86	71.03	68.53	68.86	68.45	68.20	73.53
26	74.28	74.03	74.20	74.28	74.11	71.78	70.95	68.53	68.78	68.45	68.20	74.20
27	74.36	73.86	74.20	74.28	74.11	71.70	70.95	68.53	68.70	68.36	68.28	74.53
28	74.36	73.70	74.11	74.20	74.11	71.61	70.95	69.53	68.70	68.36	68.28	74.53
29	74.53	.....	74.11	74.20	74.03	71.53	70.95	70.11	68.70	68.36	68.28	74.53
30	74.11	.....	74.11	74.20	74.03	71.53	70.86	69.95	68.53	68.28	68.28	73.70
31	73.95	.....	74.03	.....	73.95	.....	70.86	70.03	.....	68.28	.....	73.70

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1894.

TABLE No. 67.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	77.20	73.78	.....	71.70	70 95	69.03	67.86	67.86	68.03	68.28
2	.....	.....	76.95	73.70	.....	71.95	70.86	69.03	67.86	67.86	68 03	68.36
3	.....	.....	76.70	73.53	.....	72.11	70.70	69.03	67.78	67.78	67 95	68.36
4	.....	.....	76.53	73.28	.....	72.20	70 70	68.86	67.86	67.78	67.95	68.28
5	.....	.....	76.20	73.03	.....	72.36	70.78	68.70	67.86	67 86	68.03	68.28
6	.....	.....	76.20	72.70	.....	72.36	70 86	68.53	67.78	67.86	68.11	68.36
7	.....	.....	76.03	72.53	.....	72.36	70 70	68.53	67.86	67.86	68 03	68.36
8	.....	.....	75.86	72.11	.....	72.11	70.70	68.45	67.78	67.95	68.11	68.28
9	.....	.....	75.70	71.78	.....	72.03	70.61	68.36	67.78	67.95	68.11	68.28
10	.....	.....	75.70	71.53	.....	71.70	70 53	68.28	67 86	67.95	68.03	68 28
11	.....	.....	75.53	71.03	.....	71.45	70.53	68.28	67.86	67.86	68.03	68.28
12	.....	.....	75.45	71.20	.....	71.28	70.45	68.28	67.86	67.86	68.20	68.36
13	.....	.....	75.45	71.03	.....	71.11	70.45	68.20	67.86	67.86	68.11	68.36
14	.....	.....	75.36	70.70	.....	71.03	70.45	68.20	67.86	67.86	68.11	68 36
15	.....	.....	75.28	70.53	.....	70.86	70.36	68.28	67.78	67.95	68.20	68.28
16	.....	.....	75.28	70.36	.....	70.70	70.36	68.28	67.86	67.95	68.20	68.36
17	.....	.....	75 20	70.20	.....	70.61	70.20	68.28	67.86	67.86	68.20	68 45
18	.....	.....	75.11	70.03	.....	70 53	70.03	68.20	67 86	87.86	68.20	68.45
19	.....	.....	75.11	69.95	.....	70.53	70 03	68.20	67.78	67.86	68.28	68.45
20	.....	.....	74.95	70.03	.....	70.45	69.95	68.11	67.86	67 86	68.20	68.36
21	.....	.....	74.70	70 36	.....	70.45	69.78	68.20	67.86	67.95	68 20	68.36
22	.....	.....	74.70	70.86	.....	70.45	69.70	68.20	67.78	67.86	68.28	68.45
23	.....	.....	74.53	71.20	.....	70.36	69.70	68.20	67.86	67.86	68 20	68.45
24	.....	.....	74.53	71.53	.....	70.53	69.36	68.20	67 86	67.86	68.20	68.45
25	.....	.....	74.45	72.03	.....	70.61	69.28	68.20	67.95	67.86	68.20	68.45
26	.....	.....	74.36	72.45	.....	70.86	69.20	68.20	67.86	67.95	68.20	68.45
27	.....	.....	74.36	72.95	.....	71.20	69.20	68.11	67.86	68.03	68.20	68.45
28	.....	.....	74.28	73.36	.....	71.36	69.11	68.11	67.86	68.03	68.20	68.45
29	.....	.....	74.28	73.78	.....	71.45	69.03	68.03	67.86	68.03	68.20	68.95
30	.....	.....	74.28	74.20	.....	71.20	69.03	67.95	67.95	68.03	68.20	70.11
31	.....	.....	74.20	.....	.....	.....	69.03	67 86	.....	68.03	.....	70.36

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1895.

TABLE No. 68.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	70 45	71.61	74.45	69.70	71.11	70.70	68.78	68.03	67.61	67.61	66.86	67.95
2	70.45	71 61	74.28	69.70	71.11	70.86	68.70	68.03	67.61	67.53	66.70	68.11
3	70.45	71.86	74.11	69.70	71 03	70.95	68.70	67.95	67.53	67 61	66.70	67.86
4	70.45	72.11	74.53	69.70	70.95	70.95	68.61	68.03	67.53	67.36	66.70	67.78
5	71.45	73.95	76.95	69.78	70.95	71.20	68 61	68.03	67.53	67.28	66.53	67.86
6	72.20	74.36	75.20	69.86	70.95	71.20	68.53	67.95	67.53	67.28	66.53	67.70
7	72.28	72.70	73.86	70.03	71.03	71.11	68.53	67.95	67.53	67.11	66.70	67.70
8	72.53	72.20	73 20	70.36	71.20	71.11	68.45	68 03	67.45	67.20	66.70	67.70
9	72.28	80.70	72.86	70.95	71.20	70.95	68.45	68.03	67.45	67 11	66.95	67.70
10	72.28	77.03	72.70	71.11	71.20	70.70	68.45	67.95	67.53	67.03	66.86	67.53
11	72.03	74.86	72.53	71.78	71.36	70.70	68.53	67.95	67.45	67.11	66.78	67.78
12	72.03	74.70	72.28	72.20	71.53	70.78	68.45	67.95	67.45	67.20	66.95	67.95
13	72.20	74.36	71.70	72.28	71.61	70.61	68.45	67.86	67.36	67.03	66.86	68.20
14	72.36	74.36	70.95	72.28	71.70	70.53	68.36	67.86	67.20	66.95	66.95	69.03
15	72.36	74.20	70.95	71.95	71.78	70.53	68.36	67.86	67.11	66.86	67.11	69.20
16	72.20	74.03	71.03	71.70	71.53	70.45	68.28	67.86	67.11	66 86	67.20	69.36
17	70.86	74.03	70.95	71.53	71.28	70.45	68.28	67.78	67.03	66.95	67.20	69 36
18	70.86	74.20	70.86	71.28	71.20	70.36	68.36	67.78	67.36	66.86	67.20	70.53
19	70.78	74.20	71 20	70.95	71.20	70.20	68.28	67.70	67.20	66.95	67.20	69.45
20	70.70	74.28	71.03	70.70	71.11	70.03	68.20	67.70	67 28	66.95	67.20	68.70
21	70.70	74.28	70.70	70.70	71.11	69.86	68.20	67.70	67.20	66.95	66.95	68.70
22	70.70	74.36	70.70	70 53	71.03	69.53	68.20	67.70	67.20	66.95	66.95	68.36
23	70.86	74.61	70.78	70.78	70.86	69.36	68.20	67.70	67.20	66.95	67.11	68.20
24	71.03	74 53	70.70	70.86	70.70	69.28	68.11	67.86	67.28	66.86	67.20	67.95
25	71.20	75.20	70.70	70.86	70.70	69.28	68.11	67.78	67.20	66.95	67.36	67.86
26	71.36	74.95	70.78	70.95	70.70	69.20	68.20	67.78	67.20	66.95	67.11	67.86
27	71.45	74.95	70.03	71.28	70.70	69 03	68.11	67.70	67 28	66.86	67 45	68.03
28	71.45	74.95	69.70	71.28	70.70	68.95	68.11	67.70	67.20	66.95	68.03	68.20
29	71.36	.....	69.78	71.11	70.53	68.95	68.03	67.53	67.45	66.95	68.11	68.36
30	71.36	.....	69.86	71.20	70.53	68.86	68.11	67.53	67.61	66.86	68.20	68.53
31	71.45	.....	69.86	.....	70.45	.....	68.11	67.53	.....	66.86	.....	69.20

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1896.

TABLE No. 69.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	70.03	74.70	74.20	72.53	73.11	71.20	69.70	68.95	68.36	67.95	67.70	69.03
2	70.28	74.86	73.20	72.36	73.03	71.11	69 61	68.95	68 28	67.95	67.78	68 95
3	70.45	73.70	74.95	72.45	73 03	71.11	69.61	68.86	68.36	68.03	67.70	68.95
4	70.61	74.36	75.03	72.36	72.86	71.03	69.53	68.86	68.28	68.03	67.70	68.86
5	70.86	74.20	75.86	72 45	72.86	71.03	69.53	69.03	68.28	67.95	67.78	68.86
6	71.20	74.28	74.86	72.36	72.70	71.03	69.61	69.03	68.28	68.11	67.86	68.95
7	71.45	73.70	74.95	72.36	72.53	71.11	69.61	68.95	68 20	68.03	68.03	68.95
8	71 70	73.03	74.78	72.20	72.53	71.11	69 53	68.95	68.20	68.03	68.11	68 78
9	72.11	73.70	75.11	72.78	72.45	71.03	69.45	68.95	68.20	67.95	68.20	67.70
10	71.86	74.36	74.45	72.70	72.28	71 03	60.45	68.86	68.28	67.95	68.20	68 53
11	72.03	74.36	74.36	72.86	72 20	71.11	69 36	68.86	68.20	67.95	68.36	68.45
12	72.20	74.70	76.20	73.11	72.20	71.03	69.28	68.61	68.28	68.03	68.36	68.45
13	72 20	74.20	76.70	73.03	72.11	71.03	69.28	68.61	68.11	68.03	68.45	68.45
14	72.36	74.53	76.45	73.28	72.11	70.95	69.20	68.53	68.20	68.03	68.75	68.36
15	72.53	74.61	76.03	73.86	72.03	70.95	69.20	68.53	68.11	68.03	68.86	68.53
16	72.28	75.70	75.20	73.95	72.03	70.95	69.28	68.53	68.03	67.95	68.86	68.61
17	72.20	76.20	74.28	73.95	72.03	70.95	69.20	68.53	68.20	67.95	68.86	68.70
18	72.45	75.86	73.95	74.03	72.11	70.95	69.11	68.53	68.11	68.03	68.70	68.78
19	72.53	75.36	73.20	74.11	72.11	70.86	69.11	68.45	67 95	68.03	68.70	68.86
20	73.36	75.03	73.45	74.20	72.11	70.78	69.11	68.45	68.03	67.95	68.70	68.95
21	74.03	74.70	74.45	74.28	71.95	70.70	69.03	68.36	68.11	68.03	68.70	69.11
22	73.70	75.20	73.53	74.28	71.86	70.70	69.11	68.36	68.20	68.03	68.78	69.53
23	73.36	75.03	72.53	74.11	71.86	70.53	69.03	68.36	68.11	68.03	68.78	69.61
24	73.53	74.70	73.61	74.03	71.70	70.36	68.95	68.36	68.11	67.95	68.86	69.95
25	73.86	74 70	72.95	73.86	71.70	70.11	68.95	68.36	68.03	68.03	68.95	70.11
26	74.20	74.95	72.28	73.70	71.53	69.95	68.95	68.28	68.11	68.03	68.95	70.20
27	74.36	75.20	72.45	73.36	71.53	69.86	69.03	68.28	68.20	67.86	68.95	70.20
28	74.20	74.86	72.45	73.45	71.45	69.70	68.95	68 28	68.11	67.70	69 03	72.03
29	74.36	74.70	72.53	73.28	71.28	69.70	69.95	68.36	68.03	67.70	69.11	73.20
30	74.53	.....	72.45	73.20	71.20	69.70	69 03	68 36	68 03	67.78	69.11	72.70
31	74.53	.....	72 36	.....	71.20	.....	69.03	68.28	.....	67.86	.....	71.95

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1897.

TABLE No. 70.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	71.20	74.03	73.36	70.70	71.78	71.78	69.95	69.36	69.70	68.36	68.03	68.20
2	71.11	74.11	74.70	70.86	71.78	71.70	69.95	69.70	69.45	68.36	68.11	68.28
3	71.11	73.36	74.20	70.36	71.95	71.53	70.03	69.95	69.45	68.28	68.11	68.28
4	71.36	73.20	74.36	70.20	72.20	71.45	69.95	69.86	69.36	68.28	68.03	68.20
5	70.03	73.20	73.70	70.20	72.36	71.36	69.86	70.03	69.36	68.20	68.11	68.28
6	69.95	73.11	73.36	70.03	72.70	71.36	69.70	70.20	69.28	68.20	68.20	68.28
7	69.95	72.70	73.20	69.86	72.95	71.36	69.53	70.20	69.28	69.28	68.11	68.36
8	70.03	72.36	73.20	69.86	72.61	71.20	69.53	70.20	69.28	68.20	68.28	68.36
9	70.11	72.36	73.03	69.78	72.45	70.95	69.36	70.28	69.20	68.11	68.28	68.78
10	70.20	72.20	73.03	69.78	72.45	70.86	69.36	70.28	69.20	68.20	68.20	68.86
11	70.36	72.03	73.11	69.86	72.28	70.70	69.20	70.36	69.20	68.11	68.20	68.86
12	70.70	73.20	73.03	69.70	72.28	70.70	69.20	70.36	69.11	68.11	68.29	68.95
13	71.36	72.95	72.95	69.70	72.20	70.53	69.11	70.28	69.11	68.03	68.28	68.95
14	71.53	73.11	73.28	69.78	71.95	70.45	69.03	70.20	69.03	68.03	68.28	68.86
15	71.61	72.70	74.20	69.86	71.86	70.45	69.03	70.20	68.75	68.03	68.20	68.86
16	72.03	73.20	73.95	69.78	71.70	70.36	68.95	70.20	69.03	68.03	68.28	68.86
17	72.11	71.70	73.36	69.95	71.70	70.36	68.95	70.20	68.95	68.03	68.28	68.95
18	72.36	72.20	73.28	70.03	71.78	70.36	68.95	70.11	68.95	68.11	68.28	68.95
19	72.86	71.70	72.70	70.11	71.61	70.28	68.86	70.03	68.95	68.03	68.28	68.95
20	74.70	71.78	72.70	70.11	71.53	70.36	68.86	70.03	68.86	67.95	68.20	69.03
21	74.03	71.36	72.70	70.20	71.53	70.28	68.78	70.11	68.78	67.78	68.28	69.03
22	74.20	71.20	72.53	70.11	71.61	70.20	68.95	70.03	68.78	67.78	68.28	69.03
23	73.95	73.36	72.53	70.28	71.61	70.20	69.03	70.03	68.61	67.86	68.20	68.03
24	73.70	73.20	72.36	70.28	71.70	70.11	69.03	70.03	68.53	67.86	68.28	69.03
25	75.53	73.11	72.20	70.20	71.86	70.11	68.95	70.03	68.53	67.95	68.20	69.03
26	77.95	72.86	71.86	70.36	71.70	70.20	68.86	69.95	68.45	67.95	68.20	69.11
27	74.36	72.70	71.20	70.36	71.78	70.20	68.86	69.95	68.45	67.95	68.20	69.11
28	75.20	73.20	71.03	70.53	72.11	70.11	68.95	69.86	68.45	68.03	68.20	69.20
29	74.86	.....	71.03	71.03	72.28	70.11	69.03	69.86	68.45	67.95	68.20	69.78
30	74.70	.....	70.95	71.70	72.03	70.03	68.95	69.86	68.45	67.95	68.20	69.95
31	74.20	.....	70.70	.....	72.11	.....	68.95	69.86	.....	.....	.....	70.03

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1898.

TABLE No. 71.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	70.11	74.20	73.20	71.78	70.53	70.28	69.95	68.86	68.70	68.70	69.36	68.95
2	70.20	74.28	72.28	71.70	70.45	70.36	69.95	68.86	68.70	68.70	69.28	68.95
3	70.20	75.03	71.45	71.53	70.45	70.28	70.03	68.86	68.70	68.61	69.28	68.86
4	70.36	75.45	71.20	71.53	70.45	70.28	69.95	68.78	68.70	68.53	69.20	68.86
5	70.78	76.03	70.70	71.36	70.36	70.20	69.86	68.86	68.70	68.36	69.20	68.70
6	70.86	75.86	70.20	71.28	70.36	70.20	69.86	68.86	68.70	68.36	69.28	68.70
7	69.78	75.20	70.03	71.11	70.36	70.20	69.95	68.86	68.70	68.28	69.36	68.70
8	69.70	74.70	69.95	71.03	70.36	70.28	69.95	68.95	68.61	68.36	69.36	68.78
9	69.70	74.36	69.70	70.86	70.28	70.28	69.86	69.03	68.61	68.28	69.45	68.95
10	70.03	73.70	69.20	70.78	70.28	70.11	69.86	69.03	68.61	68.45	69.53	69.11
11	70.03	73.20	69.45	70.70	70.28	70.11	69.70	68.95	68.61	68.53	69.53	69.20
12	70.20	72.70	70.36	70.53	70.28	70.03	69.61	68.95	68.61	68.45	69.36	69.20
13	70.20	72.11	71.03	70.45	70.28	70.11	69.61	68.95	68.61	68.36	69.28	69.36
14	70.36	71.70	71.70	70.36	70.20	70.11	69.53	68.95	68.53	68.53	69.28	69.36
15	70.78	72.36	72.20	70.36	70.20	70.11	69.53	68.86	68.53	68.61	69.20	69.36
16	71.28	72.70	72.70	70.36	70.28	70.03	69.45	68.86	68.53	68.78	69.20	69.45
17	71.86	76.20	72.70	70.20	70.20	69.95	69.28	68.86	68.53	68.86	69.20	69.53
18	72.70	75.11	72.45	70.20	70.11	69.95	69.20	68.86	68.53	68.70	69.20	69.70
19	73.20	74.95	72.70	70.28	69.95	69.95	69.20	68.95	68.53	68.70	69.28	70.11
20	73.45	74.70	72.66	70.28	69.95	70.03	69.20	68.86	68.53	68.78	69.20	70.11
21	73.53	74.36	72.70	70.36	69.86	70.03	69.11	86.86	68.53	68.86	69.20	70.20
22	73.36	74.36	72.20	70.36	69.86	70.11	69.03	68.86	68.53	68.95	69.11	69.78
23	73.20	74.20	72.03	70.45	69.86	70.11	69.03	68.86	68.53	69.11	69.11	69.86
24	73.11	74.20	71.53	70.53	69.95	70.20	69.03	68.86	68.61	69.11	69.03	69.95
25	73.20	74.11	71.28	70.53	69.78	70 20	68.95	68.95	68.70	69.20	69.03	69.95
26	73.53	74.03	71.03	70.53	70.03	70.11	68.95	68.95	68.78	69.20	69.11	69.95
27	73.28	74.03	71.20	70.53	70.11	70.03	68.95	68.86	68.86	69.20	69.11	70.03
28	73.20	73.95	71.36	70.61	70 28	70.03	68.86	68.86	68.95	69.28	69.20	70.03
29	73.45	.....	71.70	70.53	70.28	69.95	68.86	68.86	69.03	69.28	69.11	70.03
30	73.86	.....	71.95	70.53	70.36	69.95	68.70	68.86	68.86	69.36	69.03	69.95
31	73.70	.....	71.95	.....	70.45	.....	68.70	68.86	.....	69.36	.....	69.95

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1899.

TABLE No. 72.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.95	72.20	72.70	72.20	72.36	71.03	70.03	70.03	68.28	68.28	68.45	69.03
2	70.70	72.36	72.45	71.70	72.36	71.36	70.11	70.03	68.20	68.45	68.53	69.03
3	70.03	72.20	71.95	71.70	72.45	71.28	70.03	69.95	68.11	68.36	68.53	69.11
4	70.03	72.03	71.36	71.70	72.53	71.28	70.03	69.95	68.11	68.45	68.61	69.20
5	69.95	72.03	72.20	71.70	72.86	71.20	69.95	69.86	68.11	68.36	68.61	69.03
6	70.03	72.03	71.03	71.53	72.86	71.20	69.86	69.86	68.03	68.36	68.53	69.03
7	70.78	72.11	71.36	71.53	73.03	71.11	70.20	69.86	68.03	68.28	68.53	69.20
8	70.70	72.70	71.86	71.45	73.20	71.03	70.36	69.78	68.03	68.20	68.45	69.28
9	70.86	73.03	72.20	71.45	73.20	70.95	70.03	69.78	68.03	68.28	68.45	69.11
10	71.70	77.70	72.45	71.86	73.36	70.95	70.03	69.78	68.11	68.36	68.45	69.03
11	72.20	78.20	72.20	72.03	73.20	70.86	70.11	69.70	68.11	68.36	68.36	69.20
12	71.70	75.86	71.95	72.20	73.11	70.86	70.03	69.70	68.20	68.28	68.36	69.11
13	71 86	75.20	72.20	72.36	72.95	70.78	69.86	69.61	68.20	68.28	68.28	69.20
14	72.20	74.03	71.70	72.36	72.95	70.78	69.86	69.61	68.11	68.28	68.28	69.20
15	71.78	74.20	72.36	72.45	72.70	70.70	69.95	69.53	68.11	68.20	68.28	69.20
16	72.03	73.95	72.53	72.45	72.53	70.70	69.86	69.53	68.11	68.20	68.36	69.28
17	72.20	73.20	73.03	72.36	72.45	70.78	69.70	69.45	68.20	68.20	68.28	69.28
18	71.70	73.03	73.53	72.20	72.45	70.78	69.86	69.53	68.28	68.28	68.28	69.36
19	72.03	72.86	74.20	72.11	72.28	70.86	69.78	69.53	68.20	68.28	68.28	69.53
20	72.20	72.70	74.70	72.03	72.20	70.95	69.70	69.45	68.20	68.20	68.20	69.53
21	72.03	72.70	75.70	72.03	72.11	70.86	70.53	69.45	68.11	68.20	68.20	69.45
22	72.03	72.70	75.11	71.95	72.03	70.78	70.53	69.45	68.11	68.28	68.20	69.45
23	72.03	72.78	74.70	71.95	71.86	70.70	70.45	69.45	68.11	68.36	68.11	69.53
24	72.20	72.86	74.36	71.95	71.70	70.70	70.45	69.53	68.20	68.36	68.11	69.53
25	72.03	72.95	74.36	72.03	71.53	70.45	70.36	69.53	68.28	68.28	68.11	69.45
26	72.03	73.20	72.86	72.03	71.45	70.36	70.36	69.53	68.20	68.36	68.03	69.36
27	72.20	73.36	72.70	72.03	71.36	70.20	70.28	69.61	68.20	68.36	68.03	69.45
28	72.20	73.20	72.36	72.11	71.20	70.20	70.28	69.61	68.11	68.36	68.11	69.53
29	72.20	.....	72.45	72.20	71.20	70.11	70.20	69.53	68.11	68.36	68.11	69.53
30	72.20	.....	72.36	72.28	71.03	70.03	70.20	69.45	68.20	68.36	68.11	69.53
31	72.20	.....	72.36	.....	71.03	.....	70.11	69.45	.....	68.36	.....	69.53

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1900.

TABLE No. 73.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	68.61	73.20	76.70	72.36	72.36	70 53	69.61	69.78	69.28	68 61	68.86	68.86
2	69.11	72.20	76.20	72.36	72.36	70.53	69.53	69.86	69.20	68.61	68 78	68.86
3	69.20	72.61	75.70	72.28	72.28	70.70	69.53	69.86	69.20	68.53	68.70	69.20
4	69.20	73.20	75.95	72.36	72.20	70.86	69.53	69.78	69.20	68.61	68.70	69.28
5	69.36	73.45	76.11	72.36	72.20	70.86	69.45	69.78	69.11	68.70	68.70	69.36
6	69.36	74.03	76.28	72.45	72.11	70.95	69.45	69.86	69.11	68.78	68.61	69.28
7	69.53	74.36	76.20	72.36	72.03	71.11	69.53	69.86	69.11	68.86	68.61	69.36
8	69.61	74.86	76.11	72.28	71.70	70.95	69.61	69.95	69.03	68.86	68.53	69.28
9	70.11	75.36	76.11	72 20	71.53	70.70	69.61	69.95	69.11	68.86	68.53	69.36
10	70.20	75.70	75.95	71.86	71.61	70.53	69.53	69.86	69.03	68.86	68.53	69.20
11	70.36	74.70	76.03	71.86	71.86	70.53	69.53	69.86	69.03	68.95	68.53	69.20
12	70.53	74.03	76.11	71.70	71.61	70.45	69.61	69.78	69.03	68.95	68.45	69.20
13	70.53	73.70	75.95	71.61	71.53	70.53	69.61	69.78	69.03	68.86	68.45	69.11
14	69.70	73.86	75.70	71.53	71.36	70.61	69.61	69.78	68.95	68.86	68.45	69.11
15	70.11	73.20	74.70	71.45	71.20	70.53	69.86	69.86	69.03	68.95	68.45	69.11
16	70.28	72.70	75.03	71.28	71.11	70.53	70.03	69.86	68.95	68.95	68.53	69.03
17	70.53	73.11	74.70	71.28	71.11	70.45	70.28	69.95	68.95	68.86	68.53	69.03
18	70.45	73.53	74.53	71.53	71.03	70.45	70.36	69.78	68.95	68.86	68.61	69.11
19	70.61	74.20	74.53	71.61	71.03	70.36	70.36	69.70	68.86	68.95	68.70	69.11
20	70.61	75.03	74.45	71.70	70.95	70.36	70.28	69.70	68.86	68.95	68.86	69.11
21	70.70	74.70	74.36	71.95	70.95	70.28	70 28	69.61	68.86	68.86	69.03	69.11
22	70.86	74.20	74.28	72.11	70.86	70.20	70.20	69.53	68.78	68.78	69.20	69.03
23	70.70	73.95	73.70	72.36	70.78	70.03	70.28	69.53	68.78	68.86	69.28	69.03
24	70.78	73.70	73.53	72.11	70.70	69.95	70.28	69.45	68.78	68.95	69.45	69.03
25	71.11	73.53	73.45	72.28	70.70	69.95	70.20	69.45	68.70	68.95	69.61	68.95
26	71.36	73.36	73.20	72.36	70.70	69.95	70.20	69.53	68.70	68.95	69.61	68.95
27	72.36	77.20	73.03	72.36	70.61	69.86	70.11	69.45	68.70	68.86	69.28	69.11
28	71.70	77.36	72.70	72.45	70.53	69.78	70.11	69.45	68.70	68.78	69.03	69.11
29	72.20	.....	72.36	72.45	70.53	69.70	70.03	69.36	68.70	68.78	68.95	69.03
30	72.53	.....	72 28	72.45	70.53	69.70	70.03	69.36	68.70	68.86	68.70	69.03
31	71.78	.....	72.20	.....	70.36	.....	69.86	69.45	.....	68.95	.....	69.11

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1901.

TABLE No. 74.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.53	73.11	72.78	72.03	72.53	70.95	70.11	68.70	68.61	68.20	67.78	67.86
2	69.61	72.28	72.78	72.11	72.53	70.95	70.03	68.70	68.61	68.20	67.78	67 86
3	70.28	72.36	72.70	72.11	72.20	71.28	69.95	68.70	68.53	68.11	67.78	67.86
4	71.11	72.36	72.70	72.28	72.11	71.28	69.95	68.70	68.53	68.11	67.86	67.95
5	71.20	72.28	72.78	72.36	72.03	71.20	69.95	68.70	68.61	68.11	67.86	67.95
6	71.36	72.36	72.53	72.61	72.03	71.20	69.86	68.70	68.53	68.11	67.86	67.95
7	71.53	75.03	72.53	72.86	71.95	71.11	69.86	68.61	68.53	68.03	67.86	67.95
8	72.20	73.95	72.45	72.95	71.95	71 20	69.78	68.61	68.45	68.03	67 95	68.03
9	71.70	73.70	72.45	73.20	71.86	71.03	69.78	68.70	68.45	68.03	67.95	67.95
10	72.36	73.70	72.45	73.28	71.86	71.03	69.70	68.86	68.45	67.95	67.95	68.11
11	72.70	73.45	72.53	73.20	71.86	71.11	69.70	68.78	68.45	67.95	67.86	68.11
12	73.20	73.28	72.53	73.20	71.78	71.11	69.70	68.78	68.45	67.95	67.70	68.11
13	73.03	73.36	72.45	73.11	71.70	71.20	69.61	68.70	68.36	67.95	67.70	68.20
14	72.95	73.36	72.36	73.11	71.70	71.11	69.61	68.70	68.36	68.03	67.70	68.20
15	73.20	73.53	72.28	73.11	71.61	71.03	69.53	68.70	68.36	68.03	67.70	68.20
16	72.70	73.11	72.20	73.20	71.61	71.03	69.45	68.70	68.36	68.03	67.70	68.28
17	71.86	73.03	72.03	73.11	71.53	70.95	69.36	68.78	68.36	68.11	67.70	68.28
18	71.70	73.03	72.03	73.03	71.53	70.95	69.36	68.86	68.36	68.11	67.70	68.36
19	72.20	72.86	72.03	73.03	71.45	70.86	69.28	68.36	68.36	68.11	67.70	68.36
20	72.36	72.86	71.95	73.03	71.45	70.61	69.28	68.36	68.36	68.11	67.78	68.36
21	72.61	72.70	71.95	73.11	71.36	70 53	69.20	68.86	68.36	68.03	67.78	68.36
22	73.20	72.70	71.86	73.11	71.28	70.53	69.20	68.86	68.28	68.03	67.78	68.53
23	73.36	72.70	71.95	73.28	71.20	70.45	69.11	68.86	68.28	68.03	67.78	69.53
24	73.53	72.78	71.86	73.03	71.20	70.45	69.03	68.95	68.28	67.95	67.78	69.36
25	73.53	72.78	71.86	72.86	71.20	70.45	69.03	68.95	68.28	67.35	67.70	69.20
26	72.53	72.78	71.78	72.70	71.11	70.36	69.03	68.86	68.36	67.90	67.70	69.20
27	72.70	72.70	72 78	73.53	71.11	70.20	68.95	68.86	68.36	67.86	67.70	68.28
28	72.86	72.70	72.70	73.53	71.11	70.20	68.95	68.78	68.28	67.86	67.86	68.28
29	73.11	.....	72.70	73.53	71.03	70.11	68.86	68.78	68 28	67.86	67.86	68 36
30	73.36	.....	72.78	73.61	71.03	70.11	68.78	68 78	68.36	67.86	67.95	68 36
31	73.03	.....	72.86	.....	70.86	.....	68.70	68.78	.....	67.86	.....	68 11

ELEVATIONS of River St. Lawrence at Foot of Beauharnois Canal, Melocheville, Que., during the year 1902.

TABLE No. 75.

Day of the month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.20	75.20	71.36	72.20	70.78	70.78	70.20	69.61	69.03	68.36	68.20	68.70
2	69.36	75.36	71.20	72.11	70.86	70.86	70.20	69.61	68.95	68.45	68.20	68.70
3	69.45	74.70	71.20	71.95	70.78	70.86	70.20	69.61	68.95	68.45	68.20	68.70
4	70.20	74.86	72.03	71.86	70.78	70.86	70.20	69.61	68.95	68.45	68.20	68.70
5	70.53	75.03	72.86	71.70	70.86	70.95	70.11	69.61	69.03	68.45	68.20	69.70
6	70.86	75.36	73.11	71.78	70.86	70.86	70.11	69.61	68.95	68.45	68.20	69.70
7	71.95	75.20	73.11	71.70	70.86	70.86	70.11	69.61	68.95	68.36	68.20	69.70
8	72.20	75.03	72.53	71.70	70.95	70.78	70.11	69.61	68.95	68.36	68.20	69.20
9	72.03	75.03	72.53	71.70	71.03	70.95	70.11	69.61	68.95	68.36	68.20	70.86
10	71.86	75.20	72.45	71.53	70.95	71.03	70.11	69.61	68.86	68.36	68.20	70.95
11	71.70	75.11	72.36	71.53	71.03	70.95	70.03	69.61	68.86	68.36	68.20	71.03
12	72.20	74.28	72.78	71.45	70.95	70.86	69.95	69.61	68.86	68.36	68.28	71.78
13	72.53	74.53	72.86	71.53	70.95	70.86	69.95	69.61	68.86	68.36	68.28	71.78
14	72.95	75.03	72.70	71.36	70.86	70.95	69.86	69.61	68.86	68.36	68.20	71.78
15	73.36	75.20	72.78	71.28	70.78	70.86	69.86	69.53	68.78	68.36	68.20	72.20
16	73.45	75.11	72.70	71.11	70.70	70.86	69.86	69.45	68.78	68.36	68.20	71.70
17	73.45	75.03	72.95	71.11	70.70	70.70	69.78	69.36	68.78	68.36	68.20	70.70
18	73.53	74.70	72.86	71.11	70.78	70.70	69.78	69.36	68.78	68.36	68.36	70.70
19	74.03	74.20	72.78	71.03	70.86	70.70	69.78	69.36	68.70	68.36	68.53	70.86
20	74.45	73.86	72.78	71.03	70.95	70.61	69.78	69.36	68.61	68.28	68.61	70.86
21	74.45	73.70	73.20	70.95	71.03	70.61	69.78	69.28	68.53	68.28	68.70	70.86
22	74.45	73.45	73.36	70.86	71.03	70.53	69.78	69.20	68.61	68.28	68.78	71.03
23	74.70	73.36	73.36	70.95	70.95	70.53	69.70	69.20	68.61	68.28	68.78	71.61
24	74.95	73.36	73.28	70.86	70.95	70.53	69.61	69.11	68.53	68.28	68.78	71.45
25	75.03	72.70	73.11	70.86	70.86	70.36	69.61	69.03	68.53	68.28	68.78	71.45
26	75.20	72.45	72.95	70.86	70.86	70.36	69.61	69.11	68.45	68.20	68.78	72.70
27	75.11	72.28	72.70	70.78	70.78	70.28	69.61	69.03	68.45	68.20	68.86	72.70
28	75.11	72.11	72.53	70.78	70.78	70.20	69.61	69.03	68.45	68.20	68.70	72.70
29	74.70	.....	72.36	70.70	70.89	70.20	69.61	69.03	68.45	68.20	68.70	72.70
30	74.95	.....	72.20	70.70	70.95	70.28	69.61	69.03	68.45	68.20	68.70	72.70
31	74.95	.....	72.20	.....	70.95	.....	69.61	69.03	.....	68.20	.....	72.70

ELEVATIONS of River St. Lawrence at Foot of Soulanges Canal, at Cascades, Que., during the year 1903.

TABLE No. 76.

Day of the month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	71.50	70.83	70.25	70.66	69.75	69.25	68.83	69.00	67.91
2	.....	70.25	71.50	71.16	70.83	70.25	70.75	.....	69.25	68.83	.....	67.83
3	.....	70.16	71.66	71.08	.....	70.25	70.83	69.75	69.25	68.75	69.00	67.83
4	.....	70.16	71.75	71.08	70.75	70.16	70.91	69.66	69.25	.....	69.00	67.75
5	.....	70.25	71.91	.....	70.75	70.16	.....	69.66	69.25	68.75	68.91	67.75
6	.....	70.25	71.75	71.16	70.75	70.08	70.83	69.66	.....	68.75	68.83	.....
7	.....	70.25	71.50	71.25	70.75	.....	70.75	69.66	69.16	68.75	68.75	67.83
8	.....	.....	.....	71.50	70.75	70.00	70.66	69.66	69.16	68.75	68.75	67.83
9	.....	71.50	71.58	71.66	70.75	70.00	70.50	.....	69.16	68.75	.....	67.83
10	.....	70.91	71.75	71.75	.....	69.91	70.25	69.66	69.08	68.83	68.66	67.75
11	.....	70.75	71.83	71.58	70.83	69.91	70.16	69.66	69.08	.....	68.58	67.75
12	.....	70.83	72.00	.....	70.83	69.91	.....	69.66	69.08	69.08	68.58	67.75
13	.....	70.83	72.08	71.16	70.83	69.91	70.08	69.66	.....	69.25	68.50	.....
14	.....	70.91	72.16	71.08	70.83	.....	70.00	69.66	69.08	69.08	68.25	67.91
15	.....	.....	.....	71.00	70.83	70.00	69.91	69.66	69.08	69.16	68.25	68.16
16	.....	71.08	72.16	70.91	70.83	70.00	69.83	.....	69.00	69.16	.....	68.75
17	.....	71.50	72.16	70.83	.....	70.08	69.83	69.58	69.00	69.16	68.16	68.50
18	.....	71.66	72.25	70.83	70.83	70.08	69.83	69.58	69.00	.....	68.16	68.66
19	.....	71.75	72.25	.....	70.75	70.16	.....	69.58	69.00	69.25	68.16	69.00
20	.....	71.66	72.25	70.91	70.75	70.16	69.75	69.58	.....	69.25	68.08	.....
21	.....	71.50	72.58	70.91	70.75	.....	69.75	69.58	68.91	69.25	68.08	69.50
22	.....	.....	.....	70.91	70.75	70.25	69.75	69.58	68.91	69.25	68.08	69.58
23	.....	71.16	72.75	70.91	70.75	70.25	69.75	.....	68.91	69.50	.....	69.66
24	.....	71.00	72.86	70.91	.....	70.50	69.75	69.00	68.91	69.50	68.00	69.66
25	.....	70.91	72.86	70.91	70.66	70.58	69.75	69.00	68.91	.....	68.00	69.58
26	.....	70.75	72.75	.....	70.66	70.66	.....	69.00	68.91	69.25	68.00	69.50
27	.....	70.50	72.50	70.83	70.58	70.75	69.75	69.00	.....	69.25	68.00	.....
28	.....	70.50	72.08	70.83	70.58	.....	69.75	69.00	68.83	69.25	67.91	69.25
29	.....	.....	.....	70.83	70.50	70.58	69.75	69.00	68.83	69.16	67.91	69.25
30	.....	.....	71.75	70.83	70.50	70.58	69.75	.....	68.83	69.16	67.91	69.16
31	.....	.....	71.58	.....	70.00	.....	69.75	69.25	.....	69.08	.....	69.16

ELEVATIONS of River St. Lawrence at Foot of Soulanges Canal, at Cascades, Que., during the year 1904.

TABLE No. 77.

Day of the Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
1	69.08	72.50	72.83	74.91	.....	72.75	71.25	70.16	69.91	69.75	70.00	68.83
2	69.08	72.83	73.66	75.08	72.16	72.75	71.16	70.16	69.91	.....	69.91	68.75
3	.....	76.08	73.25	.....	72.58	72.86	.....	70.08	69.83	69.83	69.91	68.75
4	69.00	76.75	73.66	75.83	72.75	73.00	71.08	70.08	.....	69.83	69.83	.....
5	69.00	75.91	74.08	76.08	72.91	.....	71.08	70.00	69.83	69.83	69.75	68.75
6	69.00	77.08	.....	76.16	73.00	73.16	71.08	70.00	69.83	69.83	.....	68.83
7	69.00	.....	74.75	76.16	73.08	73.50	71.00	.....	69.75	69.83	69.66	68.83
8	69.75	80.75	74.08	76.08	.....	73.50	71.00	69.91	69.75	69.83	69.66	68.91
9	70.08	81.83	73.75	76.00	73.25	73.50	71.00	69.91	69.75	.....	69.58	69.00
10	.....	83.16	73.50	.....	73.50	73.25	.....	69.83	69.66	69.91	69.58	69.16
11	69.91	82.83	72.91	75.91	73.50	73.25	70.91	69.83	.....	69.91	69.50	.....
12	70.00	80.50	72.58	75.66	73.50	.....	70.91	69.83	69.66	69.91	69.50	69.58
13	70.16	78.75	.....	75.25	73.25	73.16	70.91	69.83	69.66	69.91	.....	69.75
14	70.16	.....	72.86	75.00	73.25	73.16	70.83	.....	69.66	69.91	69.25	69.91
15	70.25	77.50	73.50	74.75	.....	73.08	70.83	69.75	69.66	69.91	69.25	70.08
16	70.16	78.08	74.16	74.16	73.16	73.00	70.83	69.75	69.58	.....	69.16	70.16
17	.....	79.66	74.25	.....	73.08	72.91	.....	69.75	69.58	70.00	69.16	70.16
18	70.00	81.75	74.00	73.25	73.00	72.75	70.75	69.75	.....	70.00	69.08	.....
19	69.91	78.91	73.75	72.83	72.91	.....	70.75	69.75	69.58	70.00	69.08	70.25
20	69.83	78.08	.....	72.50	72.91	72.50	70.75	69.75	69.50	70.00	.....	70.25
21	69.83	.....	73.86	72.08	72.91	72.16	70.66	.....	69.50	70.00	69.00	70.50
22	71.75	76.00	76.91	71.75	.....	72.08	70.66	69.83	69.50	70.00	69.00	70.50
23	70.75	72.16	74.16	71.50	72.91	72.00	70.58	69.83	69.50	.....	69.00	70.50
24	.....	72.00	73.83	.....	72.86	71.83	.....	69.83	69.58	69.08	68.91	70.50
25	70.16	72.75	74.00	71.50	72.86	71.75	70.50	69.83	.....	69.08	68.91	.....
26	70.08	71.91	74.16	71.50	72.86	.....	70.50	69.83	69.58	69.08	68.91	69.91
27	71.83	73.66	.....	71.50	72.86	71.66	70.25	69.83	69.66	69.08	.....	69.58
28	72.16	.....	74.25	71.58	72.75	71.58	70.25	.....	69.66	69.08	68.83	70.16
29	71.83	72.08	74.50	71.75	.....	71.50	70.25	69.83	69.66	69.08	68.83	69.91
30	71.75	.....	74.58	71.91	72.75	71.25	70.16	69.83	69.75	.....	68.83	69.75
31	.....	.....	74.66	.....	72.75	.....	.....	69.83	.....	69.08	.....	69.83

ELEVATIONS of River St. Lawrence at Foot of Soulanges Canal at Cascades, Que., during the year 1905.

TABLE No. 78.

Day of the month	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	72.08	75.75	74.08	69.16	70.25	70.00	69.75	68.91	.....	68.83	68.66
2	69.16	72.50	75.50	.....	69.25	70.16	.....	69.83	68.91	68.83	68.83	68.66
3	69.50	73.75	75.25	73.83	69.25	70.16	70.00	69.83	.....	68.83	68.83	68.75
4	70.25	72.58	75.16	73.58	69.50	.....	70.00	69.83	69.00	68.83	68.83	68.75
5	70.08	.....	.....	73.16	69.58	70.08	70.00	69.83	69.00	68.83	.....	68.75
6	69.91	74.75	75.08	73.08	69.58	70.08	69.91	.....	69.00	68.83	68.83	68.75
7	69.83	74.50	75.08	73.00	.....	70.08	69.91	69.75	69.08	68.83	68.83	68.66
8	.....	73.75	75.00	72.91	69.66	70.00	.....	69.75	69.08	.....	68.83	68.66
9	69.58	74.68	74.91	.....	69.75	70.00	69.83	69.66	69.08	68.75	68.83	68.75
10	70.25	74.00	74.83	71.50	69.91	70.00	69.83	69.66	.....	68.75	68.91	68.75
11	72.50	73.83	74.75	72.08	70.00	.....	69.83	69.58	69.00	68.75	68.91	68.75
12	72.75	.....	.....	71.91	70.08	70.00	69.83	69.58	69.00	68.75	.....	68.75
13	71.00	75.75	75.08	71.83	70.25	70.00	69.83	.....	69.00	68.75	68.91	68.75
14	71.00	75.75	75.00	71.75	.....	70.00	69.83	69.50	69.00	68.75	68.91	68.83
15	.....	75.58	74.91	71.08	70.58	70.00	.....	69.50	69.00	.....	68.91	68.91
16	70.58	76.08	74.83	.....	70.58	70.00	69.75	69.25	69.00	68.75	68.91	68.91
17	70.66	75.58	74.66	70.83	70.66	70.00	69.75	69.25	.....	68.75	68.83	68.91
18	70.83	76.00	74.58	70.50	70.66	.....	69.75	69.16	69.08	68.75	68.83	68.91
19	70.91	.....	.....	70.16	70.75	70.08	69.75	69.16	69.08	68.75	.....	68.91
20	71.08	77.08	74.25	70.00	70.75	70.08	69.75	.....	69.08	68.75	68.83	69.00
21	71.16	76.58	74.08	69.83	.....	70.08	69.75	69.25	69.08	68.75	68.83	69.00
22	.....	76.16	73.91	69.66	70.75	70.08	69.75	69.25	69.00	.....	68.83	69.00
23	71.50	76.25	73.75	.....	70.75	70.08	.....	69.50	69.00	68.75	68.83	69.00
24	71.75	76.16	73.58	69.58	70.66	70.08	69.75	69.25	.....	68.75	68.75	69.00
25	71.50	76.16	73.50	69.58	70.66	.....	69.66	69.25	69.00	68.83	68.75	69.00
26	71.25	.....	.....	69.50	70.58	70.08	69.66	69.16	69.00	68.83	.....	69.00
27	71.58	76.08	73.25	69.50	70.58	70.08	69.66	.....	68.91	68.83	68.75	69.08
28	71.75	76.00	73.16	69.25	.....	70.08	69.66	69.08	68.91	68.83	68.75	69.08
29	.....	.....	73.08	69.16	70.58	70.00	69.66	69.08	68.91	.....	68.75	69.08
30	72.08	.....	73.50	.....	70.58	70.00	.....	69.00	68.91	68.83	68.75	69.08
31	72.00	.....	73.75	.....	70.25	.....	69.66	69.00	.....	68.83	.....	69.08

ELEVATIONS of River St. Lawrence at Foot of Soulanges Canal at Cascades, Que., during the year 1906.

TABLE No. 79.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	68.91	69.83	70.33	.....	70.25	70.25	.....	68.91	68.50	68.08	68.25	68.25
2	68.91	69.83	70.33	70.25	70.16	70.16	69.83	68.91	.....	68.08	68.25	.....
3	69.00	70.00	70.00	70.00	70.68	.....	69.75	68.91	68.50	68.08	68.25	68.25
4	69.00	70.16	70.00	70.00	70.00	70.08	69.66	68.91	68.50	68.08	.....	68.25
5	69.00	70.00	70.00	69.91	70.00	70.08	69.66	.....	68.50	68.08	68.16	68.33
6	69.00	70.00	69.91	69.75	.....	70.16	69.58	68.91	68.25	68.08	68.16	68.50
7	69.00	70.00	69.91	69.66	70.08	70.16	69.50	68.91	69.25	.....	68.16	68.66
8	69.33	70.00	69.83	.....	70.16	70.66	.....	68.91	68.25	68.16	68.16	68.83
9	70.41	70.08	69.83	69.66	70.16	70.66	69.25	68.83	.....	68.16	68.16	.....
10	70.66	70.08	69.66	69.75	70 25	70.91	69.25	68.83	68.25	68.16	68.16	69.00
11	71.00	70.33	69.66	69.75	70.50	.....	69.16	68.83	68.25	68.16	.....	69.33
12	71.08	70.66	69.66	69.83	70.58	70.83	69.16	.....	68.25	68.16	68.16	69.75
13	71.08	70.66	69.66	69.83	.....	70.75	69.16	68.83	68.16	68.16	68.16	70.00
14	71.08	70.75	69.91	69.83	70.75	70.66	70.16	68.75	68.16	.....	68.16	70.25
15	71.08	70.75	70.08	.....	70.83	70.66	.....	68.75	68.16	68.16	68.16	70.25
16	70.75	70.50	70.08	70.00	70.83	70.58	69.08	68.75	.....	68.16	68.08	.....
17	70.66	70.25	70.16	69.83	70.91	70.58	69.08	68.75	68.16	68.16	68.08	70.66
18	70.66	70.16	70.16	69.83	70.91	.....	69.08	68.75	68.16	68.16	.....	71.00
19	70.33	70.16	70.08	69.83	70.91	70.50	69.08	.....	68.16	68.16	68.08	71.08
20	70.08	70.16	70.08	69.83	.....	70.25	69.08	68.66	68.16	68.16	68.16	71.08
21	69.83	70.08	70.08	69.91	70.83	70.25	69.08	68.66	68.08	.....	68.16	71.00
22	69.66	70.08	70.33	.....	70.83	70.25	.....	68.66	68.08	68.16	68.25	71.00
23	69.83	70.08	70.33	69.91	70.75	70.25	69.00	68.66	.....	68.25	68.25	.....
24	70.16	70.08	70.50	70.00	70.75	70.25	69.00	68.66	68.08	68.25	68.25	71.00
25	70.25	70.08	70.50	70.08	70.66	.....	69.00	68.58	68.08	68.25	.....	71.00
26	70.41	69.75	70.25	70.16	70.66	70.25	69.00	.....	68.08	68.25	68.50	70.91
27	70.41	69.75	70.25	70.25	.....	70.16	68.91	68.58	68.08	68.50	68.50	70.91
28	70.41	70.33	70.25	70.25	70.58	70.16	68.91	68.58	68.08	.....	68.50	70.91
29	70.41	.....	70.25	.....	70.50	70.08	.....	68.58	68.08	68.50	68.25	70.83
30	70.25	.....	70.50	70.16	70.50	70.08	68.91	68.50	.....	68.50	68.25	.....
31	69.91	.....	71.25	.....	70.25	.....	68.91	68.50	.....	68.50	.....	70.75

ELEVATIONS of River St. Lawrence at Foot of Soulanges Canal, at Cascades, Que., during the year 1907.

TABLE No. 80.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	70.66	71.16	76.50	74.75	70.91	71.58	70.66	69.83	.....	69.08	69.16	.....
2	70.66	71.25	77.50	73.75	71.08	.....	70.66	69.83	69.00	69.08	69.00	69.00
3	70.83	.....	.....	74.00	71.50	71.50	70.66	69.75	69.00	69.16	.....	68.91
4	71.08	74.08	77.00	73.75	71.50	71.50	70.66	.....	69.00	69.16	69.08	68.91
5	70.75	74.33	76.50	73.50	.....	71.50	70.58	69.75	69.00	69.16	69.08	68.83
6	.....	74.50	75.50	73.00	71.58	71.50	70.58	69.75	68.91	.....	69.16	68.83
7	70.66	75.33	75.33	.....	71.58	71.50	.....	69.66	68.91	69.16	69.58	68.91
8	70.66	73.50	75.25	72.50	71.66	71.50	70.58	69.66	.....	69.16	69.91	.....
9	70.91	73.50	75.16	72.50	71.50	.....	70.50	69.66	68.91	69.16	70.25	69.00
10	70.33	.....	.....	72.00	71.16	71.25	70.50	69.58	68.91	69.25	.....	69.08
11	71.66	73.33	74.83	71.83	71.16	71.25	70.50	.....	68.91	69.25	70.75	69.50
12	71.66	74.50	74.66	71.66	.....	71.25	70.25	69.58	69.00	69.25	70.91	69.50
13	.....	74.50	74.50	72.00	71.08	71.16	70.25	69.58	69.00	.....	71.00	69.50
14	71.50	74.66	73.75	.....	71.08	71.16	.....	69.50	69.00	69.25	70.83	69.50
15	71.50	75 50	74.33	71.50	71.08	71.16	70.16	69.50	.....	69.25	70.66	.....
16	71.33	75.33	74.33	71.50	71.00	.....	70.08	69.50	69.00	69.25	70.50	69 25
17	71.00	.....	.....	71.33	71.00	71.08	70.08	69.25	68.91	69.16	.....	69.25
18	70.91	74.00	74.00	71.00	71.08	71.08	70.00	.....	68.91	69.16	69.91	69.25
19	70.75	73.83	73.50	70.75	.....	71.08	70.00	69.25	68.91	69 16	69.75	69.25
20	.....	73.50	73.50	70.75	71.25	71.00	70.00	69.16	68.91	.....	69.66	69.25
21	71.16	75.66	73.33	.....	71.50	71.00	.....	69.16	68.91	69.16	69.58	69.25
22	71.25	75.25	73.25	70.50	71.58	70.91	69.91	69.16	.....	69.08	69.50	.....
23	71.25	76.33	73 25	70.33	71.66	.....	69.91	69.16	69.00	69.08	69.25	69.25
24	71.08	.....	.....	70.33	71.75	70.83	69.91	69.08	69.00	69.08	.....	69.50
25	71.08	77.25	73.25	70.41	71.83	70.75	69.91	.....	69.00	69.08	69.16	69.50
26	71.00	76.91	73.33	70.41	.....	70.75	69.91	69.08	69.08	69.08	69.16	69.50
27	.....	76.91	73.33	70.50	71.83	70.66	69 91	69.08	69.08	.....	69.08	69.50
28	70.66	76.75	73.25	.....	71.83	70.66	.....	69.08	69.08	69.00	69.08	69.58
29	70.75	.....	73.25	70.50	71.75	70.66	69.91	69.08	.....	69.00	69.08	.....
30	70.91	.....	74.33	70.50	71.75	.....	69.91	69.00	69.08	69.00	69.08	69.91
31	70.91	.....	.....	.....	71 66	.....	69 91	69 00	.....	69.00	.....	69.91

ELEVATIONS of River St. Lawrence at Foot of Soulanges Canal, at Cascades, Que., during the year 1908.

TABLE No. 81.

Day of the month.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.91	70.50	.....	72.75	72.75	73.75	71.25	70.16	69.66	68.75	....	68.00
2	69.83	.....	73.66	72.75	73.08	73.75	71.16	.....	69.66	68.75	68.25	68.00
3	69.83	70.83	74.50	72.83	.....	73.66	71.08	70.16	69.66	68.75	68.25	68.08
4	69.83	71 25	74.16	72.83	73.83	73.66	71.00	70.08	69.66	....	68.25	68.08
5	.....	70.91	74.00	.....	73.91	73.58	.....	70.08	69 58	68.66	68.25	68.08
6	69.91	72.08	72.75	72 58	73.91	73.58	70.91	70.08	.....	68.66	68.16	.....
7	70.16	72.25	72.25	72.58	73.91	.....	70.91	70.08	69.58	68.58	68.16	68.08
8	70.58	72.66	.....	72.75	74.00	73.50	70.91	70.08	69.58	68.58	.....	68.08
9	70.25	.....	73.08	73.08	74.08	73.25	70.91	.....	69.50	68.58	68.16	68.08
10	70.08	72.83	72.91	72.91	.....	73.16	70.91	70.00	69.50	68.58	68.08	68.16
11	70.08	72.66	73.25	73.08	74.66	73.08	70.91	70.00	69.50	.....	68.08	68.16
12	.....	72.16	73.08	.....	74.83	72.91	.....	70.00	69.50	68.58	68.08	68.16
13	70 25	72.00	72.91	73.25	74.75	72.75	70.83	69.91	.....	68.58	68.08	.....
14	70.83	71.83	72.75	73.08	74.75	.....	70.83	69.91	69.25	68.58	68.08	68.08
15	71.50	71 50	.....	72.91	74.75	72.50	70.75	69.91	69.25	68.50	.....	68.00
16	71.83	.....	72.25	72.75	74.75	72.50	70.75	.....	69.25	68.50	68.08	68.00
17	72.50	71.91	71.75	72.58	.....	72.25	70.75	69.83	69.16	68.50	68.08	68.00
18	72.16	72.16	71.91	72.16	74.66	72.16	70 75	69.83	69.16	.....	68.08	68.00
19	.....	73.00	72.00	.....	74.66	72.08	.....	69.83	69.16	68.50	68.08	67.91
20	71.00	73.58	72.16	72.08	74.66	72.00	70.75	69.83	.....	68.50	68.00	.....
21	71 16	73.08	72.25	72.08	74.58	.....	70.75	69.83	69.08	68.25	68.00	67.91
22	71.00	73.58	.....	72.00	74.25	71.91	70.75	69.83	69.08	68.25	.....	68.16
23	70.66	.....	72.50	71.91	74.08	71.83	70.75	.....	69.00	68.25	68.00	68.66
24	70.16	73.00	72.58	71.83	.....	71.83	70.66	69.75	69.00	68.25	68.00	68.91
25	70.91	72.91	72.58	71.75	74.08	71.75	70.66	69.75	68.91	.....	67.91	69.50
26	.....	72.83	72.50	.....	74.08	71.75	.....	69.75	68.91	68.25	67.91	70.16
27	70.00	72.83	72.50	71.83	74.00	71.66	70.58	69.75	.....	68.25	67.91	.....
28	69.83	72.91	72.50	71.91	73.91	.....	70.50	69.75	68.83	68.25	68.00	70.00
29	70.08	73.00	.....	72.08	73.83	71.58	70.50	69.66	68.83	68.25	.....	70.16
30	70.66	.....	72.66	72.50	73.75	71 50	70.25	.....	68.83	68.50	68.00	70.58
31	70.50	.....	72.75	.....	.....	.....	70.25	69.66	.....	68.50	.....	70.75

ELEVATIONS of River St. Lawrence at Foot of Soulanges Canal, at Cascades, Que., during the year 1909.

TABLE No. 82.

Day of the month.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	70.66	71.25	73.08	71.00	71.91	74.25	70.66	.....	69.25	68.83	68.25	68.25
2	70.58	71.25	73.08	71.16	.....	74.08	70.58	69.91	69.25	68.83	68.25	68.25
3	.....	71.75	73.16	71.16	72.50	74.00	70.58	69.91	69.25	.....	68.25	68.25
4	69.75	72.08	73.25	.....	72.91	73.83	.....	69.91	69.16	68.83	68 25	68.16
5	69.91	72.08	73.58	71.50	72.83	73.66	70.50	69.91	.....	68.83	68.25	.....
6	70.00	72.00	73.83	71.83	72.83	.....	70.50	69.91	69.16	68.83	68.25	68.25
7	70.00	.....	.....	72.16	72.83	73.16	70.50	69.83	69.16	68.75	.....	68.25
8	70.00	71.50	73.66	72.75	72.83	73.00	70.50	.....	69.16	68.75	68.25	68.25
9	70.00	71.16	73.16	73.25	.....	72.75	70.25	69.83	69.08	68.75	68 16	68.50
10	.....	71.25	72.83	73.16	72.91	72.58	70.25	69.83	69.08	.....	68.16	68.50
11	70.25	71 66	73.00	.....	73.08	72.50	.....	69.83	69.08	68.75	68.16	68.50
12	70.08	71.91	72.91	72.08	73.16	72.25	70.25	69.83	.....	68.75	68.16	.....
13	69.95	71.91	72.75	71.58	73.25	.....	70.25	69.75	69.08	68.66	68.16	68.58
14	69.50	.....	.....	71.66	73.50	72.08	70.16	69.75	69.00	68.66	.....	68.58
15	69 58	72.16	72.50	71.83	73.58	72.00	70.16	.....	69.00	68.66	68.16	68.58
16	69.75	72.50	72.16	71.91	.....	71.83	70.16	69.75	69.00	68.66	68.16	68.58
17	.....	73.50	71.83	71.91	73.75	71.66	70.08	69.66	69.00	.....	68.16	68.58
18	70.75	73.16	71.66	.....	73.75	71.50	.....	69.66	68.91	68.58	68.16	68.58
19	70.75	73.08	71.58	72.00	73.83	71.25	70.08	69.66	.....	68.58	68.16	.....
20	69.91	73 00	71.50	72.00	73.83	.....	70.08	69.58	68.91	68.58	68.16	68.66
21	70.50	.....	.....	72.00	73.91	71.16	70.08	69.58	68.91	68.58	.....	68.58
22	70.50	71.83	71.16	72.00	73.91	71.08	70.08	.....	68.83	68.58	68.16	68.58
23	69.83	71.66	71.00	71.91	.....	71.00	70.00	69.50	68.83	68.58	68.16	68.58
24	.....	71.58	70.83	71.91	74.00	70.91	70.00	69.50	68.83	.....	68.25	68.50
25	70.08	71.50	70.91	.....	74.08	70.83	.....	69.50	68.83	68.50	68.25	68.50
26	70.00	71.25	70.83	71.83	74.08	70.83	70.00	69.25	.....	68.50	68.25	.....
27	70.16	71.16	70.83	71.83	74.00	.....	70.00	69.25	68.83	68.50	68.25	68.75
28	70.50	.....	.....	71.83	74.00	70.75	69.91	69.25	68.83	68.50	.....	68.91
29	70.75	.....	70.83	71.83	74.08	70.75	69.91	.....	68.83	68.50	68.50	69.16
30	70.91	.....	70.91	71.83	.....	70.66	69.91	69.25	68.83	68.25	68.50	69.50
31	.....	.....	70.91	.....	74.50	.....	69.91	69.25	.....	.....	.....	69.66

ELEVATIONS of River St. Lawrence at Foot of Soulanges Canal, at Cascades, Que., during the year 1910.

TABLE No. 83.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.91	69.91	70.25	70.00	.....	69.91	69.58	68.83	68.58	68.16	68.25	67.91
2	.....	69.91	70.25	70.08	70.75	69.91	69.50	68.83	68.58	.....	68.25	67.91
3	69.91	69.83	70.25	.....	70.83	70.00	.....	68.83	68.58	68.08	68.25	67.91
4	70.08	69.66	70.66	70.25	70.83	70.00	69.50	68.91	.....	68.08	68.25	.....
5	70.16	69.75	70.75	70.25	70.91	.....	69.25	68.91	68.58	68.08	68.25	67.91
6	70.00	.....	.....	70.50	70.91	70.08	69.25	68.91	68.50	68.08	.....	67.91
7	69.83	70.00	70.08	70.50	71.00	70.08	69.25	.....	68.50	68.08	68.16	67.91
8	69.66	70.16	70.50	70.50	.....	70.08	69.16	68.91	68.50	68.08	68.16	68.00
9	.....	70.25	70.66	70.50	71.00	70.08	69.16	68.83	68.50	.....	68.16	68.08
10	69.83	70.16	70.58	.....	70.91	70.16	.....	68.83	68.50	68.08	68.16	68.16
11	69.91	70.08	70.50	70.50	70.91	70.16	69.08	68.83	.....	68.08	68.16	.....
12	69.91	69.91	70.25	70.50	70.83	.....	69.08	68.83	68.50	68.08	68.16	68.50
13	69.91	.....	.....	70.25	70.75	70.16	69.08	68.83	68.50	68.00	.....	68.75
14	69.75	69.66	70.08	70.25	70.66	70.16	69.08	.....	68.50	68.00	68.16	69.08
15	69.75	69.58	70.00	70.25	.....	70.16	69.08	68.75	68.50	68.00	68.08	69.75
16	.....	69.50	69.91	70.16	70.50	70.08	69.08	68.75	68.25	.....	68.08	69.91
17	69.66	69.50	69.83	.....	70.25	70.08	.....	68.75	68.25	68.08	68.08	70.00
18	69.83	70.00	69.91	70.16	70.16	70.08	69.00	68.75	.....	68.08	68.08	.....
19	69.66	70.16	69.91	70.16	70.08	.....	69.00	68.75	68.25	68.08	68.08	70.08
20	69.50	.....	.....	70.25	70.08	70.00	69.00	68.75	68.25	68.08	.....	70.08
21	69.16	70.00	70.08	70.25	70.00	70.00	69.00	.....	68.25	68.08	68.08	70.00
22	69.16	69.83	70.16	70.25	.....	69.91	69.00	68.66	68.25	68.16	68.08	69.75
23	.....	69.83	70.16	70.25	70.00	69.91	68.91	68.66	68.16	.....	68.00	69.91
24	69.16	69.66	70.08	.....	70.00	69.83	.....	68.66	68.16	68.16	68.00	70.08
25	69.25	69.83	70.16	70.50	69.91	69.83	68.91	68.66	.....	68.16	68.00	.....
26	69.25	70.16	70.25	70.50	69.91	.....	68.91	68.66	68.16	68.16	68.00	70.50
27	69.25	.....	.....	70.58	69.91	69.75	68.91	68.58	68.16	68.16	.....	70.25
28	69.50	70.00	70.08	70.58	69.91	69.66	68.83	.....	68.16	68.25	68.00	70.08
29	69.50	.....	70.00	70.66	.....	69.66	68.83	68.58	68.16	68.25	68.00	69.91
30	.....	.....	69.91	70.66	69.83	69.58	68.83	68.58	68.16	.....	68.00	69.66
31	70.00	.....	69.91	.....	69.83	.....	.....	68.58	.....	68.25	.....	69.50

ELEVATIONS of River St. Lawrence at Foot of Soulanges Canal, at Cascades, Que., during the year 1911.

TABLE No. 84.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.50	72.58	76.83	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	69.50	73.00	76.75	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	69.50	76.16	76.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	69.58	77.08	76.16	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	69.58	79.16	76.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	69.66	77.16	75.83	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	69.83	79.00	75.66	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	69.91	80.75	75.58	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	70.08	78.91	75.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	70.25	77.66	75.25	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	70.50	76.50	75.16	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	70.58	76.75	75.08	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	70.75	76.16	75.08	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	71.08	76.25	75.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	70.91	76.58	75.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	70.83	76.75	75.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	70.83	76.25	74.91	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	70.91	76.50	74.91	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	71.16	76.75	74.91	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	71.00	77.16	74.83	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	71.00	76.83	74.83	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	70.91	77.91	74.75	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	70.75	78.25	74.58	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	70.58	78.00	74.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	70.50	77.58	74.16	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	70.58	77.25	74.16	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	70.66	77.08	74.08	.....	.....	.....	.....	.....	.....	.....	.....	.....
28	70.83	76.91	74.16	.....	.....	.....	.....	.....	.....	.....	.....	.....
29	70.58	.....	74.16	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	71.50	.....	74.25	.....	.....	.....	.....	.....	.....	.....	.....	.....
31	72.25	.....	74.25	.....	.....	.....	.....	.....	.....	.....	.....	.....

ELEVATIONS of River St. Lawrence at Sorel, Que., during the year 1890.

TABLE No. 85.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17.18	21.85	22.85	21.26	19.51	22.18	19.51	16.35	17.26	15.68	15.43	14.93
2	17.43	21.85	23.26	21.18	19.68	22.01	19.43	16.00	17.18	15.68	15.26	14.93
3	17.43	21.68	23.43	21.01	19.76	22.10	19.35	16.68	17.01	15.51	15.18	14.93
4	17.60	21.68	23.51	21.10	20.35	22.01	19.43	16.00	16.93	15.43	15.10	16.35
5	17.85	21.68	23.51	21.35	20.93	22.10	19.35	16.00	16.51	15.35	14.68	17.68
6	18.10	21.93	23.35	21.93	21.10	22.10	19.18	16.51	16.35	15.35	14.60	17.85
7	18.26	21.93	23.01	22.35	21.76	22.01	19.01	16.43	16.10	15.60	14.93	18.68
8	18.26	21.93	22.68	23.01	22.01	21.68	18.85	16.43	15.93	15.35	14.68	17.76
9	18.51	22.01	22.43	23.68	21.93	21.68	18.60	16.35	15.76	15.10	14.76	17.68
10	18.60	21.93	22.18	24.18	21.93	21.51	18.35	16.18	15.68	14.93	15.10	18.68
11	18.35	21.76	22.10	24.76	21.93	21.18	18.26	15.93	15.60	14.85	15.35	18.68
12	18.18	21.68	22.01	24.93	21.76	21.43	18.10	15.93	15.68	14.85	15.35	18.85
13	18.68	21.60	21.93	25.26	21.51	21.00	18.01	15.76	16.51	15.01	15.43	18.68
14	19.35	21.51	22.01	26.35	21.43	21.43	17.68	15.93	17.01	15.26	15.35	18.51
14	19.18	21.68	22.18	26.10	21.35	21.26	17.68	15.68	17.60	15.35	15.43	18.43
16	19.60	21.76	22.35	26.01	21.26	21.18	17.68	15.76	17.68	15.43	15.43	18.51
17	20.18	21.60	22.43	26.35	21.26	21.18	17.51	15.76	17.76	15.68	15.01	18.60
18	19.93	21.51	22.18	26.43	21.18	21.10	17.60	15.76	17.60	15.85	15.01	18.26
19	19.93	21.51	22.18	26.35	21.26	21.10	17.51	15.76	17.26	16.01	15.35	18.18
20	20.01	21.91	22.01	25.85	21.43	21.10	17.51	15.76	16.93	16.10	15.68	17.68
21	20.35	22.01	21.93	24.35	21.85	20.85	17.35	15.76	16.60	16.01	15.76	17.51
22	20.60	21.85	21.93	23.60	22.60	20.85	17.10	15.68	16.26	15.60	15.76	17.85
23	20.85	21.43	22.01	22.10	22.85	20.60	16.93	15.76	16.10	15.43	15.60	18.26
24	20.93	21.43	22.01	21.10	22.93	20.26	16.76	16.01	15.93	15.51	15.43	18.51
25	21.35	21.91	21.85	20.68	22.93	20.18	16.68	15.93	15.68	15.60	15.35	18.51
26	21.51	22.18	21.76	20.10	22.68	20.18	16.68	15.93	15.35	15.60	15.35	18.35
27	22.01	22.35	21.85	19.85	22.35	20.10	16.51	16.01	15.51	15.68	15.35	18.26
28	22.01	22.51	21.76	19.51	22.35	19.93	16.43	16.18	15.68	15.60	15.10	18.43
29	22.01	.....	21.68	19.35	22.26	19.85	16.43	16.35	15.76	15.68	14.93	13.35
30	22.10	.....	21.68	19.26	22.26	19.60	16.35	17.01	15.76	15.76	15.01	18.43
31	22.01	.....	21.43	.....	22.18	.....	16.35	17.35	.....	15.76	.....	17.93

ELEVATIONS of River St. Lawrence at Sorel, Que., during the year 1891.

TABLE No. 86.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17.51	20.26	22.18	26.10	22.43	18.43	16.10	15.76	15.35	13.68	13.35	14.85
2	17.51	20.35	22.10	26.18	22.26	18.35	15.76	15.68	15.35	13.68	13.43	14.68
3	18.01	20.18	22.01	26.10	22.01	18.35	15.51	15.68	15.26	13.68	13.43	14.93
4	18.18	19.93	21.93	26.01	21.85	18.18	15.43	15.93	15.18	13.68	13.35	15.18
5	18.01	19.60	21.76	25.93	22.10	17.93	15.68	15.93	15.18	14.18	13.43	15.18
6	18.01	19.26	21.60	25.76	21.93	17.85	15.76	15.85	15.18	14.18	13.35	15.10
7	18.35	19.35	21.43	25.51	22.10	17.68	15.85	15.85	15.18	14.10	13.26	15.51
8	18.76	19.60	21.43	25.35	22.01	17.60	15.68	15.85	15.01	14.01	13.51	15.10
9	19.01	19.68	21.35	25.10	22.01	17.43	15.68	15.76	14.93	13.93	13.35	14.85
10	19.26	19.76	21.43	24.93	22.01	17.35	15.51	15.68	14.76	13.85	13.18	14.68
11	19.43	20.01	21.68	24.93	22.10	17.18	15.26	15.60	14.51	13.93	12.93	14.68
12	19.68	20.10	21.85	24.85	21.76	16.93	15.01	15.43	14.43	13.76	12.93	14.85
13	20.10	20.10	22.26	25.01	21.51	16.76	14.93	15.43	14.35	13.60	12.93	14.85
14	20.01	20.18	22.68	25.43	21.35	16.60	14.85	15.26	14.26	13.51	12.93	14.85
15	20.01	20.10	23.10	26.10	21.01	16.26	14.85	15.01	14.35	13.60	13.18	15.10
16	20.18	20.01	23.18	26.35	20.35	16.18	14.93	14.93	14.35	13.85	13.35	15.18
17	19.93	20.01	23.10	26.68	20.76	16.26	14.85	14.93	14.43	14.01	13.35	14.93
18	19.85	20.18	23.10	26.26	20.60	16.18	15.01	14.76	14.60	14.18	13.43	14.93
19	19.68	20.18	22.85	26.26	20.60	16.01	15.10	15.10	14.76	14.18	13.68	15.10
20	19.68	20.10	22.76	26.68	20.60	15.93	15.10	15.18	14.85	15.68	13.35	16.35
21	19.76	20.10	22.43	25.60	20.43	16.01	15.43	15.18	15.01	15.01	13.51	17.43
22	19.76	20.18	21.85	25.01	20.26	16.18	15.68	15.26	15.01	14.76	13.60	18.35
23	20.01	20.26	22.10	24.35	20.35	16.43	15.68	15.60	14.93	14.26	13.68	18.68
24	20.43	20.26	22.60	23.93	20.18	16.60	15.76	16.43	14.85	14.10	13.85	18.68
25	20.51	20.60	23.60	23.35	19.85	16.60	16.01	16.01	14.35	13.68	14.01	18.68
26	20.60	21.01	24.60	23.18	19.76	16.51	16.01	16.10	14.18	13.43	14.35	18.68
27	20.43	21.51	25.10	23.01	19.68	16.60	16.10	16.10	14.01	13.35	14.68	17.35
28	20.18	22.18	25.43	22.76	19.35	16.43	15.93	15.85	13.76	13.60	15.10	16.68
29	19.93	.....	25.68	22.68	19.18	16.26	15.93	15.43	13.68	13.43	15.01	16.51
30	19.85	.....	25.85	22.51	19.01	16.18	15.85	15.43	13.35	13.26	14.85	16.26
31	20.01	.....	25.93	.....	18.76	.....	15.85	15.43	.....	13.26	.....	16.18

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1892.

TABLE No. 87.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.10	18.18	16.26	17.43	16.60	17.43	19.01	15.18	15.43	14.10	13.51	14.01
2	16.76	18.26	16.51	17.60	16.43	17.18	18.93	15.10	15.18	14.01	13.93	14.10
3	17.18	18.35	16.51	18.01	16.35	17.10	18.85	15.01	14.76	14.01	13.93	14.10
4	17.18	18.26	16.51	19.01	16.35	17.01	18.76	14.76	14.68	14.10	14.10	14.01
5	16.93	18.18	16.85	20.35	15.85	16.85	19.10	14.76	14.68	14.35	14.76	14.26
6	16.51	18.10	17.01	20.85	16.18	16.76	19.18	14.76	14.68	14.35	13.93	14.18
7	17.10	17.93	17.01	22.68	16.18	16.76	19.01	15.01	14.76	14.43	13.93	14.01
8	17.68	17.60	17.01	24.18	16.43	17.01	18.68	14.85	14.85	14.76	13.76	14.35
9	17.60	17.68	16.93	23.93	16.60	16.93	18.35	14.93	14.85	14.93	13.60	14.18
10	17.68	17.76	16.93	24.18	16.51	17.01	18.18	15.10	14.76	14.93	14.10	14.01
11	17.68	17.68	17.01	25.51	16.60	16.76	18.10	15.51	14.85	14.76	13.68	13.76
12	17.93	17.76	17.01	24.43	16.85	16.85	17.85	16.60	14.85	14.43	13.35	13.43
13	18.43	17.85	16.76	23.68	16.93	16.85	17.68	17.85	14.68	14.10	13.18	13.10
14	18.51	17.68	16.51	22.43	16.93	16.76	17.51	17.76	14.60	13.76	13.01	13.18
15	18.51	17.26	16.26	21.18	16.93	16.68	17.35	17.60	14.43	13.68	12.93	13.18
16	18.26	17.10	16.35	20.01	16.60	16.68	17.01	17.18	14.10	13.68	13.51	13.18
17	18.18	16.93	16.68	19.01	16.43	16.43	16.60	16.68	14.01	13.93	13.76	13.18
18	18.18	16.93	17.01	18.18	16.35	16.26	16.18	16.35	13.85	13.93	14.18	13.18
19	18.26	17.01	17.10	17.43	16.51	16.18	16.10	16.35	13.93	13.93	14.35	13.35
20	18.51	17.01	17.10	16.53	16.85	16.35	15.93	16.26	14.26	13.93	14.51	13.51
21	18.43	17.10	16.85	16.18	16.43	16.76	15.93	16.18	14.18	14.10	14.76	13.60
22	18.18	17.01	16.60	15.85	16.68	18.18	15.76	16.01	14.18	14.10	14.93	13.85
23	17.85	16.93	16.76	15.68	16.85	18.68	15.68	15.60	14.26	14.10	14.93	14.76
24	17.93	16.85	16.85	15.85	16.93	18.76	15.76	15.76	14.35	14.01	14.85	14.35
25	17.93	16.85	16.85	15.85	16.85	18.68	15.85	15.60	14.35	13.93	14.68	14.51
26	18.10	16.76	16.85	15.85	16.93	18.76	15.76	15.93	14.43	13.93	14.60	14.10
27	18.35	16.76	16.85	15.85	17.18	18.68	15.76	16.68	14.51	13.85	14.35	15.35
28	18.01	16.51	16.85	16.18	17.43	18.68	15.76	16.68	14.60	13.60	14.26	15.43
29	17.68	16.18	17.01	16.35	17.43	18.76	15.76	16.68	14.51	13.60	14.18	16.10
30	17.85	.....	17.10	16.60	17.68	19.01	15.68	16.18	14.26	13.60	14.10	16.18
31	18.18	.....	17.26	.....	17.68	.....	15.43	15.93	.....	13.43	.....	16.35

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1893.

TABLE No. 88.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.35	16.51	16.35	19.35	20.68	21.68	17.76	16.10	18.10	15.10	14.51	14.01
2	16.60	16.18	16.43	19.60	19.68	21.43	17.51	15.93	17.68	15.01	14.18	13.93
3	17.10	16.18	16.43	19.76	19.18	21.35	17.35	15.85	17.35	15.01	14.10	14.01
4	16.85	16.18	16.35	19.93	19.43	21.26	17.26	15.60	16.93	14.60	14.18	14.01
5	16.60	16.18	16.35	20.01	20.60	21.18	17.18	15.60	16.35	14.26	14.10	14.60
6	16.35	16.10	16.35	20.18	20.93	21.10	17.10	15.43	16.01	14.18	13.93	15.18
7	16.18	16.10	16.26	20.35	21.10	21.10	16.93	15.43	15.85	14.18	14.18	15.35
8	16.10	16.18	16.26	20.43	21.10	21.01	16.85	15.35	15.93	14.10	14.10	17.01
9	15.85	16.18	16.35	20.60	21.01	21.85	16.85	15.26	15.60	14.10	14.26	17.10
10	16.10	16.26	16.35	20.93	20.85	20.60	16.76	15.18	15.68	14.26	14.51	17.18
11	16.18	16.60	16.26	21.43	20.76	20.60	16.51	15.18	15.68	14.35	14.35	19.18
12	16.10	16.76	16.26	21.76	20.83	20.76	16.43	15.43	14.85	14.43	14.18	18.43
13	15.93	17.01	16.35	22.35	20.93	20.68	16.68	15.68	15.35	14.43	14.01	18.18
14	15.60	17.01	16.51	22.76	21.18	20.60	16.85	15.51	15.26	14.60	13.93	18.01
15	15.60	16.93	16.60	23.01	22.18	20.60	16.85	15.51	15.01	14.18	13.85	18.10
16	16.51	17.01	17.18	23.10	22.68	20.60	16.93	15.60	14.85	14.18	13.76	18.60
17	16.60	16.85	17.43	23.18	23.10	20.35	16.76	15.68	14.68	14.85	13.60	19.01
18	16.68	16.68	17.26	23.26	23.01	20.10	16.68	15.68	14.43	14.85	13.35	19.18
19	16.76	16.60	17.18	23.43	23.18	19.68	16.68	15.43	14.43	13.85	13.43	19.18
20	16.85	16.68	17.18	23.43	23.18	19.43	16.51	15.01	14.35	13.68	13.51	19.35
21	16.85	16.68	17.35	23.60	23.18	19.10	16.18	14.68	14.35	13.60	13.68	19.18
22	16.76	16.43	17.43	23.85	23.18	19.01	15.85	14.60	14.35	13.68	13.76	19.43
23	16.60	16.26	17.43	23.93	23.18	18.76	15.85	14.35	14.43	13.76	14.10	19.68
24	16.60	16.35	17.35	24.51	23.01	18.68	15.68	14.26	14.43	14.10	14.18	19.85
25	16.68	16.26	17.60	24.18	22.68	18.60	15.68	14.68	14.43	14.26	14.26	20.35
26	16.85	16.26	17.76	23.93	22.51	18.60	15.68	14.85	14.51	14.43	14.01	20.85
27	16.85	16.26	18.18	24.35	22.51	18.43	15.68	15.10	14.60	14.76	13.93	20.76
28	16.68	16.35	18.51	24.43	22.35	18.43	15.76	15.10	14.68	15.01	14.10	20.43
29	16.51	.....	18.60	23.93	22.18	18.18	15.76	15.68	14.76	15.10	14.10	20.35
30	16.60	.....	18.76	23.93	21.93	17.93	15.76	16.85	15.01	14.76	13.93	20.68
31	16.43	.....	19.10	.....	21.76	.....	15.85	17.85	.....	14.60	.....	20.76

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1894.

TABLE No. 89.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	19.93	19.85	18.43	22.93	21.01	18.18	17.43	15.26	14.35	14.43	15.10	14.26
2	19.76	19.60	18.51	22.60	20.93	18.43	17.35	15.43	14.35	14.43	15.01	14.35
3	19.60	19.60	18.51	22.68	21.10	18.76	17.51	15.68	14.43	14.43	15.01	14.35
4	19.85	19.60	18.60	22.68	21.10	19.35	17.35	15.60	14.35	14.35	15.10	14.18
5	20.10	19.68	18.43	22.68	21.26	19.43	17.43	15.43	14.18	14.35	15.10	14.10
6	20.51	19.43	18.60	22.68	21.43	19.43	17.43	15.18	14.01	13.93	15.26	13.93
7	20.68	19.26	18.93	23.01	21.43	19.43	17.51	15.18	13.85	13.68	15.10	13.93
8	20.85	19.25	19.93	23.10	21.60	19.43	17.51	14.93	14.18	13.51	14.93	14.10
9	20.68	19.60	20.76	23.01	21.43	19.43	17.26	15.10	13.85	13.43	15.10	14.76
10	20.51	19.68	21.35	23.01	21.85	18.85	17.18	14.76	13.51	13.43	15.60	14.76
11	20.35	19.60	22.01	22.93	21.76	18.60	17.01	14.43	13.43	13.68	15.43	15.26
12	20.26	19.68	22.51	23.01	21.26	18.43	16.93	14.43	13.43	13.76	15.43	15.85
13	20.18	18.93	22.93	22.85	20.93	18.18	16.85	14.26	13.35	13.93	15.35	16.18
14	19.85	18.43	23.35	21.85	20.68	16.85	16.85	14.18	13.43	14.35	15.35	16.18
15	19.68	18.10	23.68	21.60	20.43	16.85	16.85	13.93	13.60	14.60	15.35	15.85
16	19.85	18.01	23.76	21.35	20.18	15.85	16.85	14.43	13.76	14.51	15.36	15.85
17	20.35	18.01	23.76	21.51	18.85	16.76	16.76	14.60	13.85	14.60	15.35	14.93
18	20.18	18.01	23.68	21.35	18.85	16.76	16.76	14.68	14.10	14.01	15.43	15.35
19	20.10	18.35	23.68	20.35	19.85	16.93	16.68	14.43	14.18	15.26	15.26	14.93
20	20.18	18.68	24.01	19.51	20.10	17.10	16.60	14.68	14.85	15.35	14.76	14.76
21	20.18	18.68	24.43	19.26	19.68	17.10	16.43	14.68	14.85	15.35	14.43	14.43
22	20.10	18.68	24.76	19.68	19.35	17.26	16.35	14.43	14.26	15.43	14.43	14.35
23	20.35	18.60	25.10	20.01	19.10	17.35	16.18	14.35	13.85	15.18	14.60	14.43
24	20.26	18.43	25.10	20.60	19.10	17.35	16.18	14.18	13.51	15.01	14.60	14.43
25	20.35	18.01	25.01	20.93	19.01	17.35	15.85	14.10	13.68	15.01	14.76	14.76
26	20.18	17.85	24.68	21.10	18.76	17.18	15.68	14.18	13.68	15.10	14.93	15.43
27	19.85	18.18	24.51	21.10	18.51	17.10	15.43	13.85	13.68	15.10	14.93	15.60
28	19.85	18.43	24.35	21.10	18.35	17.18	15.18	13.85	13.85	15.10	14.76	15.85
29	19.93	.....	23.76	21.18	18.18	17.68	15.10	13.85	13.93	15.01	14.60	15.85
30	19.93	.....	23.43	21.10	18.10	17.51	15.10	14.10	14.85	15.35	14.43	15.68
31	20.10	.....	23.10	.....	18.18	.....	15.18	14.35	.....	15.35	.....	15.68

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1895

TABLE No. 90.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.18	16.10	15.85	16.85	19.68	18.10	16.01	13.43	13.68	12.60	11.93	14.51
2	16.51	16.01	16.01	16.93	19.51	18.10	15.76	13.43	13.60	12.51	11.93	14.35
3	16.51	15.93	15.85	17.01	19.26	18.18	15.43	13.43	13.43	12.68	11.93	14.43
4	16.60	15.93	15.60	17.10	19.26	18.18	15.18	13.60	13.51	13.10	12.10	14.35
5	16.51	15.86	15.51	17.18	19.60	18.10	15.18	13.68	13.68	13.18	12.01	14.60
6	16.60	15.43	15.35	17.35	19.60	17.93	15.10	13.76	13.76	13.18	12.01	14.85
7	16.35	15.18	15.35	17.51	19.60	17.85	14.93	13.93	13.85	13.18	12.01	14.93
8	16.18	15.01	15.43	18.35	19.68	17.93	14.85	13.76	13.85	13.10	11.93	14.10
9	16.35	15.18	15.68	19.18	20.01	17.68	14.93	13.85	13.68	12.85	12.26	14.18
10	16.51	15.60	16.01	20.85	20.18	17.68	14.68	13.76	13.43	12.76	12.60	14.10
11	16.68	15.68	16.10	22.26	20.35	17.01	14.60	13.85	13.43	12.68	12.51	14.10
12	17.10	15.76	16.01	23.01	20.43	16.85	14.35	13.93	13.35	12.43	12.43	14.68
13	17.51	16.01	16.10	23.35	20.35	17.01	14.26	14.01	13.26	12.51	12.35	14.60
14	17.93	16.26	16.18	23.35	20.35	17.01	14.35	13.85	13.01	12.43	12.60	14.51
15	17.93	16.10	16.26	23.85	20.35	16.93	14.26	13.93	13.01	12.43	12.68	14.85
16	17.43	15.85	16.01	24.18	20.18	16.85	14.10	13.85	12.85	12.43	12.60	14.18
17	17.18	15.51	15.85	24.18	19.68	16.43	13.93	13.60	12.76	12.43	12.85	14.18
18	16.85	15.51	15.76	22.60	19.35	16.43	13.76	13.60	13.10	12.68	13.10	14.35
19	16.35	15.51	15.68	21.43	19.01	16.26	13.76	13.76	13.35	12.68	13.10	14.68
20	16.01	15.35	15.60	20.68	18.68	16.18	13.76	14.10	13.43	12.68	13.60	16.10
21	15.68	15.35	15.68	20.43	18.35	16.35	13.76	14.18	13.68	13.01	13.43	16.18
22	15.85	15.35	15.68	19.85	18.10	16.60	13.93	14.35	13.68	13.01	12.93	16.26
23	16.43	15.35	15.68	20.01	17.85	16.68	14.18	14.43	13.60	12.93	12.68	16.60
24	16.60	15.18	15.68	20.01	17.93	16.68	14.10	14.51	13.35	12.68	12.43	16.76
25	16.60	15.18	15.68	20.18	17.85	16.76	14.26	14.76	13.10	12.43	12.18	16.93
26	16.35	15.35	15.93	20.26	17.85	17.01	14.35	14.93	12.85	12.26	12.85	16.93
27	16.43	15.60	16.10	20.35	17.68	17.10	14.35	14.85	12.68	12.10	13.18	16.10
28	16.51	15.68	16.26	20.18	17.76	16.68	14.26	14.68	12.60	11.85	14.18	17.68
29	16.43	.....	16.51	19.93	18.10	16.51	13.93	14.35	12.68	11.76	14.43	17.93
30	16.26	.....	16.76	19.68	18.10	16.10	13.76	14.01	12.60	11.85	14.68	17.85
31	16.18	.....	16.76	.....	18.10	.....	13.51	13.68	.....	11.93	.....	18.76

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1896.

TABLE No. 91.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17.26	15.60	18.68	18.60	21.01	17.35	14.68	14.10	13.18	13.01	13.35	15.93
2	17.76	15.85	19.18	19.01	22.51	17.18	14.60	13.76	13.10	13.35	13.26	15.68
3	17.85	16.35	19.68	19.68	21.92	16.85	14.68	13.68	12.93	14.18	13.43	15.51
4	17.93	16.60	20.01	20.10	21.43	16.60	14.68	13.43	12.93	13.93	13.76	15.51
5	18.01	16.85	19.93	20.35	21.35	16.35	14.93	13.60	13.01	13.86	14.18	15.60
6	17.01	18.10	19.85	20.60	21.43	16.43	14.85	13.85	13.18	13.93	14.60	16.18
7	16.68	17.93	19.68	20.68	21.10	16.43	14.85	14.01	13.35	14.35	15.01	16.18
8	16.43	18.51	19.76	20.68	20.68	16.43	14.68	14.01	13.60	14.60	15.51	15.68
9	16.26	18.60	19.68	20.85	20.43	16.68	14.68	13.93	13.76	14.51	15.68	15.43
10	16.18	18.68	19.43	21.10	20.43	16.76	14.68	14.10	13.93	14.35	15.68	15.43
11	16.26	18.68	19.18	21.51	20.35	16.85	14.68	14.35	13.93	14.26	15.60	15.18
12	17.01	18.76	19.18	22.10	20.43	17.43	14.76	14.35	13.85	14.18	15.18	14.85
13	17.10	18.85	19.18	22.93	20.35	17.18	14.93	14.35	14.01	14.18	15.10	14.85
14	17.10	18.93	19.10	23.93	20.10	17.35	15.10	14.51	13.76	13.39	15.10	14.85
15	17.01	19.01	19.76	25.35	19.93	17.18	15.18	14.35	13.35	13.43	14.68	14.18
16	16.85	18.93	18.76	26.76	19.68	17.10	15.18	14.18	13.10	13.18	15.10	14.35
17	16.51	19.01	18.76	28.35	19.35	16.85	15.01	13.93	12.85	13.10	14.93	15.18
18	16.43	18.93	18.85	29.85	18.85	16.43	14.93	13.68	12.85	13.18	15.43	15.85
19	16.43	18.85	18.76	30.43	18.68	16.18	14.85	13.68	12.85	13.01	15.43	16.51
20	16.51	18.68	18.93	31.10	18.43	16.01	14.51	13.51	13.10	13.10	15.60	16.85
21	16.43	18.85	18.85	32.35	17.85	16.01	14.35	13.35	12.85	13.10	15.43	16.68
22	16.43	18.76	18.85	31.18	17.68	15.68	14.43	13.51	13.18	13.10	15.35	16.68
23	16.43	18.26	18.43	30.18	17.60	15.85	14.43	13.68	13.35	13.35	15.35	17.10
24	16.18	18.43	18.18	29.60	17.43	15.85	14.43	13.76	13.35	13.51	15.01	17.18
25	16.01	18.68	17.93	28.93	17.35	15.68	14.35	13.76	13.43	13.60	15.10	17.18
26	16.18	18.60	17.85	27.76	17.35	15.35	14.43	13.85	13.35	13.43	15.76	17.10
27	16.01	18.35	17.93	26.35	17.18	15.35	14.43	13.68	13.26	13.26	15.60	17.18
28	16.01	18.18	17.93	24.93	17.35	15.26	14.43	13.76	13.18	13.10	15.60	17.26
29	15.68	18.18	17.93	24.10	17.43	15.10	14.51	13.51	13.10	13.18	15.93	17.68
30	15.51		18.10	23.51	17.43	14.85	14.35	13.35	12.85	12.93	16.10	17.85
31	15.43	.....	18.18	.....	17.43	.....	14.26	13.18	.....	13.26	.....	18.43

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1897.

TABLE No. 92.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	18.26	16.01	15.01	20.35	22.68	20.35	16.68	15.85	15.18	13.68	13.18	13.68
2	17.68	16.10	14.93	20.60	22.68	20.10	16.68	15.93	15.18	13.85	13.35	13.60
3	17.68	16.43	15.18	20.85	22.93	19.85	16.76	15.93	15.10	13.60	13.68	13.35
4	17.93	16.35	15.51	21.01	23.01	19.67	16.68	15.85	14.85	13.10	13.18	13.18
5	18.01	16.01	15.85	21.01	22.93	19.51	16.43	15.60	14.43	12.76	13.26	13.10
6	18.10	15.85	16.10	21.01	22.85	19.35	16.35	15.35	14.18	12.68	13.60	13.18
7	17.93	15.68	16.18	21.18	22.60	19.35	16.18	15.18	14.18	12.85	13.43	13.76
8	17.76	16.10	16.01	21.51	22.35	18.93	15.93	14.93	14.10	12.93	13.43	14.60
9	17.26	16.26	15.85	21.51	21.85	18.60	15.68	14.68	14.01	13.01	13.43	14.93
10	17.10	16.18	15.93	21.60	21.60	18.43	15.68	14.76	14.26	12.93	13.93	14.93
11	17.10	15.76	16.18	21.60	21.18	18.18	15.68	15.10	14.43	12.85	13.93	14.68
12	17.01	15.60	16.51	21.43	20.85	18.10	15.60	15.01	14.43	13.10	14.43	15.43
13	16.93	15.35	16.68	21.26	20.76	18.18	16.26	15.18	14.35	13.10	14.10	15.43
14	16.68	14.93	16.76	21.35	20.60	18.43	16.60	15.18	14.35	13.18	13.76	15.43
15	16.60	14.68	16.68	21.43	20.60	18.51	16.93	15.18	14.35	13.01	13.43	15.76
16	16.51	15.18	16.68	21.68	20.60	18.51	17.35	15.43	14.18	13.10	13.26	15.93
17	16.51	15.68	16.68	22.43	20.68	18.60	17.51	15.43	14.10	12.93	13.10	15.93
18	16.68	15.85	16.85	22.43	20.60	18.51	17.18	15.35	13.91	12.68	13.10	15.76
19	16.10	16.10	17.26	21.35	20.51	18.35	16.93	15.18	13.60	12.35	13.01	15.43
20	16.68	15.93	17.51	20.68	20.26	18.10	16.43	15.18	13.43	12.43	13.10	15.10
21	16.43	15.93	17.93	20.01	20.26	17.68	16.10	14.76	13.31	12.68	13.18	15.60
22	16.51	16.01	18.35	19.18	20.35	17.26	15.68	14.60	13.26	12.68	13.18	16.51
23	16.85	15.68	18.85	18.43	20.43	17.10	15.60	14.60	13.26	12.68	13.18	16.43
24	16.76	15.60	19.43	18.10	20.43	16.93	15.68	14.51	13.35	12.60	13.18	16.68
25	16.51	15.51	20.01	18.10	20.43	16.85	15.76	14.60	13.35	12.68	13.10	16.51
26	16.01	15.35	20.26	18.51	20.60	16.76	15.85	14.68	13.43	13.01	13.26	16.18
27	15.76	15.26	20.35	19.60	20.68	16.60	15.60	14.85	13.51	13.18	13.68	16.43
28	15.76	15.10	20.35	20.60	20.76	16.43	15.43	15.01	13.68	13.35	13.93	16.76
29	15.76	.....	20.35	21.35	20.85	16.43	15.35	15.18	13.76	13.35	14.10	16.43
30	16.01	.....	20.35	21.85	20.85	16.51	15.43	15.18	13.76	13.51	13.85	16.35
31	16.01	.....	20.35	.....	20.68	.....	15.51	15.18	.....	13.43	.....	16.76

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1898.

TABLE No. 93.

Day of the month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.81	17.35	18.85	25.93	14.93	17.43	17.02	14.77	14.43	14.43	16.02	14.93
2	16.81	17.00	18.68	25.77	14.68	17.68	17.02	14.85	14.52	14.43	15.68	14.68
3	16.10	17.43	18.60	25.27	14.43	17.85	16.93	14.93	14.68	14.35	15.60	14.43
4	15.77	17.27	18.52	24.77	14.43	18.18	17.02	14.93	14.85	14.18	15.35	14.43
5	15.43	17.18	18.43	24.35	15.60	17.93	17.18	14.93	14.60	14.43	15.18	14.93
6	15.68	17.27	18.43	23.18	14.85	17.85	17.18	14.85	14.35	14.10	14.68	14.85
7	15.18	17.00	18.35	21.85	14.43	17.77	17.02	14.68	14.18	13.85	14.68	14.43
8	16.68	17.68	18.35	20.60	13.93	17.60	16.85	14.68	13.93	13.60	14.60	14.02
9	16.68	17.77	18.43	19.68	13.68	17.43	16.68	14.60	13.85	13.18	14.43	13.68
10	16.52	17.85	18.43	18.93	13.60	17.27	16.68	14.43	13.77	13.18	14.68	13.60
11	16.43	17.93	18.43	18.43	13.52	16.93	16.35	14.35	13.68	13.02	15.27	13.52
12	16.18	18.10	18.60	18.10	14.35	16.77	15.93	14.18	13.52	13.02	15.10	14.35
13	16.10	18.18	19.18	17.68	15.18	16.60	15.68	14.02	13.60	13.18	14.60	15.18
14	16.18	18.18	20.68	17.60	15.43	16.52	15.43	14.02	13.60	13.43	14.60	15.43
15	16.18	18.18	22.27	17.60	15.27	16.43	15.27	13.93	13.68	14.43	14.77	15.27
16	16.35	18.43	23.68	17.68	15.27	16.43	15.18	13.93	13.85	14.68	15.10	15.27
17	16.35	18.68	24.60	17.68	15.52	16.43	15.18	14.02	13.93	15.02	15.18	15.52
18	16.27	18.52	25.27	17.68	15.93	16.43	15.10	14.27	13.93	14.93	15.43	15.93
19	16.10	18.02	25.68	17.68	16.10	16.43	15.10	14.43	13.93	14.85	15.52	16.10
20	15.81	17.85	26.02	17.85	15.68	16.43	15.18	14.60	13.93	14.68	15.52	15.77
21	16.35	17.83	26.52	18.10	15.85	16.43	15.18	14.43	13.85	14.68	15.43	15.85
22	16.85	18.27	26.77	18.10	16.10	16.43	15.35	14.52	13.68	14.85	15.60	16.10
23	16.84	18.35	26.68	18.27	16.52	16.35	15.35	14.52	13.60	14.52	15.52	16.35
24	17.18	18.42	26.68	18.35	16.43	16.10	15.18	14.52	14.68	14.43	15.18	16.43
25	17.10	18.77	26.60	18.43	16.43	16.18	15.02	14.52	14.18	14.43	15.10	16.43
26	16.85	18.93	26.33	18.35	16.43	16.43	14.93	14.35	14.02	14.93	14.93	16.43
27	16.85	19.02	26.10	18.35	16.43	16.68	14.85	14.18	14.10	15.10	14.85	16.43
28	16.68	19.02	26.02	18.10	16.52	16.77	14.68	14.10	14.18	15.10	14.93	16.52
29	16.52	.....	26.18	18.43	15.93	16.85	14.60	14.02	14.27	15.43	14.85	16.43
30	16.77	.....	26.18	18.10	16.10	17.02	14.60	14.18	14.27	15.85	14.85	15.93
31	17.02	.....	26.18	.....	16.10	.....	14.60	14.27	.....	16.02	.....	16.10

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1899.

TABLE No. 94.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	15.93	16.02	17.43	19.35	22.77	18.77	16.02	14.93	13.35	14.27	13.85	13.35
2	15.68	16.10	17.52	19.43	23.18	18.68	15.68	14.93	13.60	14.60	14.35	13.52
3	15.43	16.10	17.52	19.43	23.68	18.68	15.52	14.93	13.43	14.85	14.68	13.60
4	15.68	16.10	17.52	19.35	23.68	18.68	15.52	14.93	13.60	15.02	14.93	14.02
5	16.18	16.18	17.52	19.35	23.77	18.60	15.43	14.93	13.43	15.10	14.93	14.35
6	16.93	16.10	17.68	19.35	23.77	18.68	15.52	14.93	13.43	15.27	15.02	14.27
7	17.27	15.93	17.68	19.35	23.68	18.93	15.68	14.93	13.43	15.35	14.93	14.10
8	16.93	15.93	17.85	19.52	23.60	18.85	15.60	14.85	13.43	15.27	14.68	13.85
9	16.85	16.02	18.10	20.10	23.60	18.60	16.02	14.77	13.52	15.02	14.43	13.68
10	16.85	15.85	18.10	20.68	23.35	18.52	16.02	14.68	13.43	14.93	14.18	13.35
11	16.60	15.60	18.18	21.35	23.27	18.10	16.35	14.68	13.43	14.68	14.18	13.18
12	16.35	15.43	18.27	21.77	22.93	19.02	16.43	14.60	13.27	14.35	14.43	13.18
13	16.02	15.18	18.60	22.10	22.68	17.85	16.43	14.43	13.18	14.18	14.18	14.18
14	15.93	15.35	18.93	22.43	22.27	17.68	16.43	14.35	13.10	14.02	13.77	15.10
15	16.60	15.85	19.18	22.93	22.10	17.93	16.35	14.18	12.85	13.77	13.68	15.93
16	17.10	15.85	19.27	23.60	21.77	17.68	16.27	13.93	12.68	13.77	13.77	15.60
17	17.43	16.18	19.35	24.18	21.52	17.60	16.10	13.68	12.60	13.93	14.18	15.10
18	17.43	16.43	19.18	24.60	21.18	17.18	15.93	13.68	13.02	14.02	14.18	15.27
19	17.18	16.52	19.10	25.18	20.68	17.02	15.77	13.68	13.43	14.10	14.02	15.27
20	16.60	16.35	19.10	25.60	20.52	16.85	15.68	13.77	14.35	14.27	14.18	15.18
21	16.35	16.27	18.93	26.10	20.35	16.93	15.93	14.10	14.18	14.27	14.18	15.18
22	16.60	16.43	18.68	25.85	20.10	17.10	16.18	14.52	14.02	14.27	14.02	16.10
23	16.77	16.68	18.68	25.18	19.77	17.10	16.10	14.93	14.68	14.02	13.85	16.02
24	16.77	17.02	18.85	24.68	19.68	17.02	16.27	15.18	13.85	14.02	13.68	15.85
25	16.85	16.93	18.93	24.43	19.35	16.85	16.35	15.02	13.60	13.68	13.43	15.68
26	16.68	16.85	19.10	23.52	19.10	16.93	16.27	14.85	13.43	13.35	13.18	15.35
27	16.52	17.02	19.18	23.10	19.10	16.85	16.18	14.52	13.43	13.43	12.93	14.93
28	16.43	17.35	19.18	22.85	19.35	16.85	16.10	14.18	13.43	13.43	12.85	14.68
29	16.02	.....	19.27	22.60	19.18	16.68	15.93	13.85	13.68	13.43	12.85	14.68
30	15.93	.....	19.43	22.68	18.93	16.43	15.68	13.60	14.18	13.43	13.02	15.10
31	15.93	.....	19.43	.....	18.77	.....	15.18	13.27	.....	13.43	.....	15.18

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1900.

TABLE No. 95.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.18	16.85	18.35	20.18	21.77	17.68	15.68	16.10	14.43	14.18	13.68	15.60
2	16.18	16.60	18.85	20.43	21.68	16.85	15.68	15.93	14.18	14.10	13.18	15.35
3	16.68	16.68	19.43	20.85	21.52	18.27	15.43	15.68	12.85	13.93	13.27	15.27
4	17.10	16.85	19.77	21.52	21.35	18.27	15.43	15.60	13.77	13.77	14.35	15.18
5	17.27	17.02	19.77	22.10	20.93	18.18	15.43	15.43	13.77	13.68	13.52	17.02
6	17.68	17.10	19.93	22.60	20.43	18.10	15.35	15.18	14.68	14.68	13.77	16.60
7	17.93	16.85	20.02	23.27	20.10	17.85	15.18	15.18	13.85	14.68	14.10	16.10
8	17.93	17.77	20.10	24.10	19.68	17.52	15.18	15.27	13.93	14.68	14.43	14.85
9	17.77	16.85	20.18	24.43	19.52	17.27	15.35	15.35	13.93	14.85	14.93	15.43
10	17.43	17.60	20.35	24.68	19.35	17.10	15.68	15.52	14.10	15.35	15.35	15.18
11	17.43	17.77	20.43	24.85	19.35	16.85	15.85	15.68	14.27	15.35	15.27	15.93
12	17.10	17.93	20.18	24.68	19.27	16.93	16.10	15.93	14.52	15.35	14.93	16.18
13	16.77	18.10	20.02	24.18	19.18	16.93	16.27	16.10	14.68	15.18	14.68	16.10
14	16.60	18.93	19.77	23.93	19.18	16.77	16.68	16.18	14.43	15.10	14.60	16.52
15	16.68	19.10	19.85	23.60	19.10	16.68	16.93	16.10	14.27	14.85	14.27	16.02
16	16.68	19.18	19.77	23.60	19.10	16.60	17.10	16.10	14.18	14.35	13.93	15.85
17	16.85	19.43	19.77	23.18	19.18	16.60	17.18	16.10	13.93	14.35	13.68	16.10
18	16.85	19.68	19.68	23.02	19.35	16.77	17.60	15.68	14.02	13.85	13.43	16.18
19	16.43	19.60	19.68	23.43	19.43	16.43	17.77	15.35	14.02	14.02	13.93	16.18
20	16.68	19.43	19.85	23.35	19.43	16.18	17.93	15.18	13.93	13.93	14.60	16.43
21	17.43	19.18	19.93	23.35	19.43	15.93	17.85	15.18	13.85	13.68	15.27	16.68
22	17.43	19.10	19.85	23.60	19.18	15.77	17.43	14.85	14.02	13.68	16.18	16.68
23	17.43	19.27	19.68	23.18	19.02	15.68	17.18	14.77	14.27	13.77	17.68	16.68
24	17.60	19.27	19.93	23.18	18.93	15.43	16.93	14.68	14.52	13.93	17.85	16.85
25	17.10	19.10	19.77	23.02	18.77	15.35	16.77	14.68	14.60	14.18	17.68	16.93
26	16.85	19.02	19.68	22.68	18.43	15.18	16.85	14.68	14.52	14.10	17.68	16.85
27	17.02	18.68	19.68	22.68	18.18	15.60	16.68	14.68	14.43	14.02	17.68	16.77
28	16.77	18.27	19.85	22.60	18.77	15.85	16.60	14.77	14.60	14.18	17.10	16.68
29	16.60	.....	19.85	22.35	18.43	16.18	16.35	14.77	14.43	14.02	16.35	16.60
30	16.77	.....	19.93	22.10	18.10	15.52	16.27	14.68	14.35	14.27	15.85	16.18
31	16.85	.....	20.02	.....	17.85	.....	16.18	14.60	.....	14.43	.....	16.18

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1901.

TABLE No. 96.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.52	16.02	14.68	20.60	22.27	18.18	16.18	14.18	14.85	13.68	13.35	14.18
2	16.18	16.02	14.68	20.60	22.10	18.10	16.10	14.43	14.68	13.60	13.27	14.18
3	15.68	15.93	15.10	20.60	22.18	18.18	16.10	14.60	14.77	13.68	13.27	13.77
4	15.27	15.93	15.10	20.93	22.18	18.18	16.10	14.60	14.60	13.68	13.10	14.27
5	15.35	15.93	15.18	21.77	21.93	18.43	16.10	14.52	14.35	13.60	12.85	14.85
6	15.27	16.02	15.35	22.85	21.68	18.43	16.18	14.52	14.18	13.52	12.77	14.93
7	15.35	15.68	15.18	24.10	21.52	18.43	16.18	14.43	13.85	13.10	12.68	14.60
8	15.93	15.35	15.18	25.43	21.27	18.27	16.18	13.93	13.68	12.85	12.68	14.43
9	16.27	15.10	15.60	26.68	21.02	18.27	15.93	13.93	13.43	13.68	12.68	14.68
10	16.27	15.02	15.85	27.68	20.68	18.27	15.52	13.93	13.43	12.93	12.77	15.60
11	16.52	15.35	16.02	28.02	20.68	18.27	15.27	14.18	13.43	13.35	12.93	15.68
12	16.43	15.35	16.35	27.35	20.18	18.35	15.10	14.27	13.52	13.35	13.10	15.68
13	16.35	15.60	16.60	26.43	20.10	18.35	14.93	14.43	13.68	13.43	13.43	15.68
14	15.93	15.68	16.68	25.85	19.68	18.18	14.68	14.43	13.93	13.35	13.68	16.10
15	15.52	15.43	16.68	25.10	19.68	18.27	14.60	14.43	13.85	13.35	14.18	17.60
16	15.68	15.18	16.93	24.52	19.43	18.18	14.68	14.35	13.68	13.18	13.68	18.85
17	16.18	15.18	16.93	26.18	19.43	17.77	14.93	14.35	13.35	13.27	13.27	18.43
18	16.43	15.43	16.93	25.68	19.60	17.68	15.02	14.18	13.43	13.35	13.02	17.68
19	16.27	15.77	17.10	24.35	19.93	17.43	15.18	14.18	13.43	13.18	13.02	17.18
20	16.60	15.93	17.10	23.43	20.10	17.35	15.10	14.18	13.43	13.18	12.93	16.93
21	15.77	15.93	17.35	23.18	19.77	17.10	14.77	13.93	13.18	13.18	12.60	16.60
22	15.35	15.77	17.43	22.93	19.60	16.93	14.60	13.85	13.02	13.10	12.35	16.43
23	15.60	15.68	17.60	23.10	19.27	16.77	14.43	13.43	12.68	12.93	12.35	16.27
24	15.77	15.60	17.68	23.10	19.27	16.85	14.43	13.43	12.68	12.93	13.10	16.18
25	15.85	15.60	17.93	23.02	19.02	16.68	14.10	13.43	12.77	13.35	13.43	16.43
26	16.43	15.35	18.18	23.10	18.35	16.52	13.93	13.43	12.77	13.18	13.68	16.93
27	16.93	15.35	18.43	22.93	18.10	16.35	13.77	13.43	12.85	13.10	13.68	16.85
28	16.77	15.02	19.18	21.93	18.02	16.27	13.68	13.43	12.93	13.35	13.60	17.10
29	16.68	.....	19.60	22.43	18.35	16.18	13.68	13.68	12.93	13.18	13.52	17.02
30	16.35	.....	20.10	22.35	18.18	16.27	14.10	13.68	13.35	13.43	13.93	16.77
31	15.85	.....	20.35	.....	18.10	.....	14.18	14.43	.....	13.43	.....	16.43

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1902.

TABLE No. 97.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.02	14.77	14.85	23.93	18.93	19.18	16.93	15.43	14.43	14.43	15.02	15.43
2	15.43	14.77	14.85	23.60	19.27	18.93	16.68	15.85	14.60	14.68	14.93	15.43
3	14.85	15.60	15.43	22.68	19.68	18.93	16.68	15.93	14.68	14.60	14.93	15.43
4	14.68	16.10	16.60	22.18	19.68	18.93	16.68	16.27	14.68	14.43	14.93	15.93
5	14.60	15.43	17.43	21.60	19.77	19.35	16.77	16.52	14.77	14.35	14.77	15.77
6	14.68	15.27	18.02	21.10	19.77	19.52	16.93	16.43	14.68	14.35	14.68	15.43
7	15.27	15.27	18.35	20.68	19.85	19.43	16.93	16.52	14.68	14.18	14.60	15.27
8	15.77	15.10	18.35	20.35	19.77	19.43	16.93	16.35	14.52	14.02	14.43	15.93
9	16.10	14.93	18.43	20.85	19.68	19.18	16.93	16.10	14.43	13.93	14.18	16.77
10	16.10	14.93	18.27	21.18	20.02	18.85	16.85	15.93	14.18	13.68	13.93	16.10
11	16.10	14.93	18.10	21.02	20.02	18.93	16.85	15.68	14.10	13.43	14.02	16.10
12	15.93	14.52	17.93	20.60	19.93	18.85	16.18	15.52	13.93	13.60	14.35	16.10
13	16.35	14.60	18.10	20.18	19 85	18.68	16.02	15.27	13.93	13.68	14.93	16.60
14	16.18	14.43	18.77	19.85	19.60	18.52	15.93	15.18	13.93	13.52	15.10	16.85
15	15.77	14.27	19.35	19.52	19.18	18.18	15.68	15.10	13.93	13.68	15.43	16.93
16	15.68	14.18	20.77	19.18	18.68	17.93	15.68	14.93	13.93	13.77	15.68	16.93
17	15.68	14.18	20.43	18.93	18.52	17.77	15.68	14.93	14.10	14.10	16.10	17.60
18	15.52	14.27	20.43	18.68	18.18	17.68	15.93	14.93	14.18	14.27	16.27	18.43
19	15.27	14.77	22.02	18.68	18.10	17.60	15.93	14.93	14.27	14.52	16.10	18.77
20	15.18	14.68	22.02	18.43	17.93	17.60	15.93	15.02	14.43	14.52	16.10	18.93
21	14.93	14.10	22.18	18.43	17.85	17.68	16.10	15.18	14.68	14.68	15.93	18.60
22	16.10	14.10	22.35	18.68	17.60	17.68	16.35	15.43	14.43	14.60	15.68	18.52
23	15.85	14.43	22.68	18.68	17.43	17.52	16.43	15.43	14.43	14.52	15.43	18.60
24	16.10	14.60	22.93	18.60	17.43	17.43	16.43	15.52	14.43	14.35	15.35	18.60
25	15.68	14.60	22.85	18.52	17.52	17.35	16.43	15.43	14.18	14.10	15.35	18.43
26	15.52	14.68	22.43	18.52	17.93	17.52	16.18	15.27	13.93	14.18	15.60	18.43
27	15.68	14.77	22.27	18.52	18.18	17.18	16.02	15.10	13.68	14.02	16.18	18.77
28	15.52	14.68	22.10	18.68	18.43	17.35	15.85	14.77	13.68	14.10	16.02	18.85
29	15.27	.....	22.18	18.77	18.93	17.18	15.68	14.60	13.93	14.43	15.93	18.77
30	14.77	.....	22.93	18.85	19.27	17.27	15.68	14.43	14.27	14.77	16.35	18.68
31	14.77	.....	23.18	.....	19.35	.....	15.60	14.43	.....	13.85	.....	18.68

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1903

TABLE No. 98.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	18.60	18.43	19.68	23.02	18.02	16.93	17.10	15.77	14.60	13.93	14.02	13.10
2	18.68	18.35	20.18	22.35	18.18	16.85	16.93	15.60	14.43	14.02	14.02	13.18
3	18.85	18.52	20.68	21.35	18.35	16.52	16.85	15.43	14.43	14.18	14.18	13.43
4	19.02	19.18	20.93	21.18	18.10	16.43	16.93	15.35	14.35	14.18	14.18	13.68
5	19.10	19.60	21.10	20.85	18.35	16.18	17.02	15.18	14.43	14.18	14.27	13.77
6	18.85	19.68	21.18	20.60	18.43	15.93	17.02	15.18	14.43	14.35	14.68	13.85
7	18.77	19.68	21.18	20.10	18.43	16.02	16.93	15.18	14.43	14.60	14.85	14.18
8	18.60	19.68	21.10	20.10	18.27	15.93	16.93	15.27	14.60	14.68	14.85	14.43
9	18.35	19.68	21.27	20.18	18.43	16.02	16.85	15.27	14.60	14.93	14.52	14.68
10	18.02	19.77	21.68	20.18	18.35	16.18	16.85	15.43	14.52	15.18	14.35	15.85
11	17.85	19.77	21.93	20.02	18.35	16.18	16.93	15.52	14.52	15.43	14.18	15.60
12	16.85	20.18	22.77	19.77	18.52	16.52	16.60	15.60	14.52	15.85	14.18	15.85
13	17.85	20.52	22.93	19.68	18.68	17.02	16.60	15.43	14.27	15.77	14.02	16.18
14	17.68	20.52	24.18	19.68	18.68	17.18	16.52	15.52	14.18	15.52	13.68	16.68
15	17.43	20.43	24.60	19.93	18.68	17.35	16.35	15.52	14.18	15.35	13.52	16.43
16	17.68	20.27	24.93	19.60	18.68	17.77	16.18	15.35	14.18	15.10	13.77	16.43
17	17.93	20.43	24.93	19.43	18.35	17.43	16.10	15.35	14.18	14.93	14.35	16.43
18	18.35	20.43	25.02	18.93	18.18	17.35	15.85	15.35	14.02	15.10	14.18	16.68
19	18.18	20.18	25.10	18.77	18.18	17.10	15.68	15.18	13.93	15.27	14.02	16.60
20	17.60	19.77	25.52	18.52	18.18	16.93	15.68	15.18	14.18	15.18	14.02	16.43
21	17.18	19.52	25.93	18.18	18.10	16.93	15.85	15.18	14.35	15.60	13.77	16.77
22	17.02	19.35	26.02	18.10	17.68	16.77	15.93	15.18	14.60	15.68	13.68	17.35
23	17.10	19.27	26.68	18.02	17.68	16.93	16.18	15.18	14.68	15.68	13.68	17.18
24	17.18	19.35	27.35	17.93	17.52	16.93	16.18	15.43	14.68	15.77	13.60	16.68
25	17.10	19.43	27.85	17.77	17.35	17.02	16.10	15.52	14.85	15.52	13.18	16.68
26	17.77	19.27	29.10	17.68	17.35	17.18	16.27	15.68	14.85	15.35	13.02	16.85
27	16.68	19.43	28.85	17.77	17.18	17.35	16.18	15.60	14.60	15.18	13.10	16.43
28	16.68	19.43	27.52	17.77	17.18	17.35	16.43	15.43	14.60	14.85	13.18	16.43
29	17.18	.....	26.18	17.93	16.93	17.35	16.18	15.43	14.43	14.43	12.85	16.18
30	17.85	.....	24.93	18.18	17.10	17.27	16.18	15.10	14.18	14.27	12.85	16.10
31	18.18	.....	23.93	.....	17.18	.....	15.93	14.60	.....	14.18	.....	16.18

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1904.

TABLE No. 99.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.18	15.93	16.27	22.60	21.35	21.18	18.10	15.68	15.10	16.35	16.18	14.35
2	16.43	16.43	16.35	23.02	21.68	21.18	17.85	15.68	15.02	16.27	16.02	14.02
3	16.68	16.43	16.68	23.85	21.93	21.18	17.68	15.68	15.27	16.18	15.93	13.77
4	16.85	16.43	16.93	24.43	22.18	21.18	17.43	15.60	15.52	16.18	15.85	13.77
5	16.77	16.27	16.60	24.18	22.18	21.60	17.18	15.43	15.93	16.10	15.93	13.68
6	16.68	16.10	16.52	25.02	22.52	21.77	17.18	15.18	16.10	15.93	16.02	14.18
7	16.68	16.10	16.60	25.52	22.68	21.68	16.93	15.02	15.93	16.02	16.02	14.60
8	16.85	16.18	17.10	25.77	22.68	21.93	16.68	15.02	15.68	16.02	16.10	14.85
9	16.93	16.18	17.35	26.02	22.68	21.77	16.68	15.02	15.68	16.02	16.35	15.68
10	17.35	15.93	17.43	26.18	22.68	21.77	16.43	15.02	15.43	16.43	16.02	16.27
11	17.10	15.68	17.35	26.77	22.85	21.52	16.60	15.10	15.52	16.68	16.10	16.02
12	17.02	15.68	17.18	27.35	22.77	21.68	16.68	15.43	15.60	17.35	14.85	15.93
13	16.93	15.85	17.18	27.60	22.68	21.52	16.85	15.52	15.68	17.02	14.85	16.10
14	16.93	16.27	17.10	27.43	22.60	21.35	16.93	15.68	15.68	16.60	15.10	16.35
15	17.02	16.52	17.18	27.35	22.52	21.18	17.10	15.68	15.43	16.43	15.10	16.43
16	16.93	16.68	17.43	26.93	22.43	21.02	17.10	15.91	15.18	16.18	14.85	16.02
17	16.93	16.60	17.43	26.18	22.52	21.18	17.18	15.85	14.85	15.85	14.85	16.35
18	16.85	16.43	17.43	25.60	22.43	20.52	17.18	15.68	14.68	.....	14.85	16.43
19	16.68	16.18	17.43	26.02	22.85	20.18	17.10	15.43	14.68	.....	15.02	16.43
20	16.35	16.18	17.60	26.18	23.35	19.93	16.93	16.18	14.68	.....	14.60	16.35
21	16.27	16.35	17.68	25.35	23.10	19.68	16.68	15.52	14.68	.....	14.43	16.35
22	16.18	16.35	17.60	24.93	22.77	19.52	16.43	15.43	14.68	.....	14.68	16.35
23	16.18	16.68	17.68	24.77	22.43	19.18	16.35	15.52	14.68	.....	14.52	16.52
24	16.35	16.60	17.77	24.60	22.10	18.85	16.18	15.52	14.68	.....	15.02	16.93
25	16.43	16.60	18.18	23.77	21.77	18.60	16.10	15.43	15.35	.....	14.93	16.85
26	16.18	16.52	18.43	23.18	21.68	18.52	16.02	15.27	15.93	.....	14.93	16.52
27	15.93	16.18	19.60	22.18	21.60	18.43	16.02	15.43	16.18	.....	14.68	16.18
28	15.85	16.18	20.68	21.52	21.52	18.35	15.93	15.35	16.18	.....	14.27	16.10
29	15.52	16.18	21.68	21.02	21.43	18.10	15.93	15.27	16.10	.....	14.43	16.10
30	15.52	.....	22.18	21.10	21.43	18.02	15.93	15.35	16.27	.....	14.43	15.93
31	15.68	.....	22.43	.....	21.35	.....	15.77	15.18	.....	.....	.....	15.85

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1905.

TABLE No. 100.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	15.85	17.68	17.27	24.02	15.35	17.10	15.85	15.35	14.77	15.10	14.68	14.35
2	16.18	17.68	17.27	24.52	15.60	16.85	15.85	15.60	14.93	15.02	14.60	14.18
3	16.35	17.68	17.18	24.60	15.77	16.93	15.77	15.68	15.35	15.02	14.43	14.27
4	16.18	17.52	17.10	24.68	16.10	16.93	15.93	15.68	15.18	14.85	14.35	14.43
5	15.93	17.18	17.02	24.85	16.35	16.68	16.18	15.68	15.27	14.68	14.18	14.43
6	15.85	17.02	17.10	25.77	16.52	16.68	16.18	15.52	15.27	14.43	14.18	13.93
7	15.77	17.10	17.10	24.93	16.68	16.93	16.18	15.60	15.18	14.02	14.27	13.93
8	16.02	17.18	17.10	25.02	17.10	16.60	16.10	15.43	14.85	13.85	14.27	13.93
9	16.52	17.18	17.10	24.68	17.43	16.43	15.85	15.27	14.52	13.77	14.43	14.18
10	16.68	17.27	17.18	24.52	17.68	16.18	15.68	15.18	14.43	13.93	14.52	14.35
11	17.02	17.52	17.18	24.27	17.93	16.18	15.52	15.02	14.35	14.10	14.35	14.43
12	17.18	17.35	17.02	24.27	18.18	16.27	15.35	14.77	14.43	14.43	14.18	15.10
13	17.43	17.18	16.85	24.77	18.35	16.27	15.18	14.93	14.52	14.43	14.43	16.35
14	17.43	17.10	16.68	24.18	18.27	16.35	15.10	14.93	14.68	14.27	14.43	17.43
15	17.68	17.02	16.68	22.68	18.27	16.43	15.18	14.93	14.60	14.27	14.35	17.10
16	17.68	16.85	16.60	21.77	18.68	16.43	15.43	15.02	14.43	14.27	14.43	16.68
17	17.77	17.02	16.60	20.43	19.02	16.60	15.43	14.93	14.52	14.02	14.43	16.68
18	18.02	17.02	16.60	19.52	19.10	17.18	15.52	14.93	14.68	14.02	14.35	16.68
19	18.18	16.93	16.68	18.68	19.18	17.43	15.68	14.93	14.68	14.27	14.02	16.85
20	18.27	16.77	16.93	18.18	19.18	17.43	15.77	14.85	14.60	14.85	13.68	16.85
21	18.43	16.85	17.02	17.93	19.35	17.27	15.68	14.68	14.43	14.18	13.43	17.02
22	18.43	17.10	17.27	17.43	19.18	17.18	15.60	14.60	14.27	14.10	13.10	17.27
22	18.60	17.18	17.60	17.02	19.10	17.02	15.35	14.52	14.18	14.02	13.02	17.52
24	18.43	17.18	17.85	16.60	18.77	17.77	15.35	14.35	14.18	14.02	13.18	17.60
25	18.27	17.18	18.02	16.27	18.43	16.43	15.18	14.27	14.10	14.10	13.18	17.60
26	17.93	17.27	18.27	15.93	18.10	16.43	15.02	14.18	14.18	14.27	12.85	17.68
27	17.77	17.43	18.85	15.93	17.85	16.18	14.93	14.18	14.35	14.35	14.10	17.52
28	17.52	17.35	19.68	15.68	17.60	16.02	14.68	14.18	14.43	14.43	14.35	17.60
29	17.68	.....	20.52	15.60	17.18	15.93	14.85	14.18	14.68	14.68	.....	17.68
30	17.68	.....	20.52	15.43	17.10	15.85	15.10	14.27	14.93	14.77	.....	17.85
31	17.68	.....	22.77	.....	17.10	.....	15.18	14.60	.....	14.93	.....	17.85

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1906.

TABLE No. 101.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	17.85	18.60	17.10	18.10	17.35	17.27	16.43	14.27	13.27	12.93	13.35	13.18
2	17.85	18.35	16.68	18.10	17.43	17.10	16.18	14.18	13.35	12.93	13.43	13.18
3	17.68	17.35	16.68	18.02	17.52	17.10	16.02	14.18	13.43	13.18	13.52	13.52
4	17.27	17.02	16.68	17.85	17.60	17.02	16.02	14.18	13.68	13.43	13.43	13.85
5	17.10	17.10	16.68	17.77	17.68	16.93	16.10	14.43	13.77	13.43	13.35	14.93
6	17.18	17.27	16.60	18.02	17.68	17.10	16.10	14.43	13.52	13.35	13.18	15.02
7	17.18	17.18	16.43	18.02	17.93	17.68	16.02	14.52	13.60	13.43	13.10	15.68
8	17.18	17.10	16.43	18.10	18.02	17.68	16.02	14.52	13.60	13.18	13.10	15.35
9	16.93	16.93	16.43	18.68	18.35	18.18	15.93	14.43	13.60	13.18	13.02	15.02
10	16.85	16.93	16.68	18.77	18.60	18.35	15.93	14.43	13.43	13.02	12.85	14.93
11	16.85	16.85	16.52	18.68	18.85	18.68	15.93	14.27	13.27	13.18	12.68	15.02
12	16.85	16.77	16.43	18.68	18.85	18.52	15.68	14.18	13.10	12.93	13.68	15.02
13	16.93	16.85	16.52	18.68	18.93	18.18	15.43	13.85	12.93	12.77	13.85	15.35
14	16.93	17.10	16.43	18.60	19.18	17.85	15.18	13.68	12.85	12.77	13.68	15.52
15	17.10	17.43	16.43	18.77	19.18	17.77	15.02	13.52	12.85	12.77	13.52	15.68
16	17.18	17.18	16.18	18.10	18.93	17.52	14.85	13.43	13.02	13.18	13.93	15.68
17	17.27	16.68	16.27	18.68	18.77	17.35	14.68	13.52	12.93	13.43	14.10	16.18
18	17.43	16.52	16.18	17.35	18.68	17.18	14.52	13.52	12.93	13.43	13.93	16.52
19	17.60	16.52	16.02	17.10	18.68	17.02	14.53	13.60	13.27	13.52	13.68	16.43
20	17.60	16.60	16.02	17.27	18.68	16.93	14.52	13.60	13.43	13.68	13.68	16.02
21	17.77	16.68	16.18	17.02	18.68	16.93	14.52	13.77	13.60	13.77	13.68	16.10
22	17.85	16.77	15.93	17.18	18.52	16.77	14.52	13.85	13.93	13.93	13.93	16.18
23	17.93	17.10	15.93	17.68	18.52	17.43	14.68	14.27	13.85	13.77	13.43	16.02
24	18.52	17.27	15.68	17.85	18.52	17.77	14.77	14.35	13.68	13.68	13.43	15.68
25	18.85	17.27	15.68	17.93	18.43	17.43	14.85	14.27	13.43	13.43	13.10	15.68
26	18.93	17.43	15.85	18.02	18.35	17.18	14.77	13.93	13.10	13.18	13.02	15.68
27	19.10	17.52	16.02	17.93	18.27	16.93	14.68	13.68	12.85	13.18	13.85	15.68
28	18.93	17.35	16.60	17.77	18.18	16.77	14.68	13.68	12.85	13.27	13.68	15.68
29	18.85	.....	17.27	17.68	17.93	16.68	14.43	13.60	12.77	13.10	13.52	15.85
30	18.35	.....	17.77	17.60	17.68	16.68	14.43	13.43	13.93	13.18	13.43	15.93
31	18.27	.....	18.10	.....	17.43	.....	14.43	13.27	.....	13.27	.....	16.18

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1907.

TABLE No. 102.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	15.85	16.52	17.68	22.93	19.91	19.25	17.74	16.25	14.00	14.25	14.58	14.08
2	16.43	16.93	17.68	24.43	20.25	19.00	17.66	16.16	13.91	14.16	14.41	14.08
3	16.35	17.27	17.77	24.77	20.16	18.74	17.50	15.74	14.00	14.16	14.50	14.58
4	16.35	17.68	18.18	24.93	20.16	18.66	17.25	15.58	14.41	14.41	14.74	14.50
5	16.52	17.68	18.35	24.93	20.16	18.41	17.00	15.33	14.16	14.41	15.33	14.41
6	16.60	17.52	18.35	24.77	20.16	18.33	16.91	15.33	14.33	14.50	15.66	14.41
7	16.85	17.52	18.27	24.52	19.91	18.41	16.66	15.16	14.33	14.50	17.66	14.50
8	16.93	17.52	18.18	24.18	19.66	18.41	16.58	15.25	14.33	15.00	17.66	14.50
9	16.85	17.68	18.02	24.02	19.50	18.50	16.41	15.33	14.58	15.33	17.50	14.58
10	16.77	17.77	17.85	23.68	19.08	18.58	16.41	15.25	14.66	15.50	17.41	14.91
11	16.35	18.18	17.77	23.60	18.91	18.41	16.41	15.33	14.66	15.66	17.41	14.91
12	16.52	18.35	17.85	23.35	18.66	18.25	16.41	15.25	14.50	15.74	17.16	16.41
13	16.52	18.27	17.93	23.18	18.41	18.16	16.41	15.16	14.41	15.74	16.58	16.16
14	16.60	17.93	17.93	23.18	18.41	17.91	16.41	15.08	14.33	15.83	16.25	15.41
15	16.60	18.02	17.93	23.60	18.41	18.00	16.33	15.00	14.25	15.33	16.00	15.58
16	16.35	18.18	17.93	23.68	18.33	17.83	16.16	14.83	14.16	15.25	15.83	15.50
17	16.02	18.35	17.93	23.68	18.16	17.66	16.00	14.66	14.16	14.83	15.74	16.16
18	15.77	18.77	17.85	23.77	18.16	17.41	15.83	14.58	14.16	14.58	15.50	16.41
19	15.43	18.68	17.93	24.10	18.25	17.25	15.66	14.50	14.08	14.66	15.58	16.33
20	15.43	18.35	18.18	24.18	18.41	17.25	15.58	14.33	14.16	14.74	15.66	16.16
21	15.52	18.18	18.35	24.10	18.58	17.08	15.50	14.41	14.50	14.91	15.58	16.00
22	15.52	18.18	18.35	23.77	18.91	17.08	15.50	14.41	14.74	14.91	15.41	15.83
23	15.52	17.77	18.35	23.60	19.16	16.91	15.50	14.50	14.74	14.74	15.25	15.66
24	15.43	17.60	18.43	23.35	19.25	16.74	15.66	14.50	15.00	14.91	15.58	16.16
25	15.18	17.43	18.93	23.35	19.41	16.91	15.66	14.66	14.83	14.91	15.66	16.08
26	14.93	17.60	19.18	22.93	19.41	17.25	15.91	14.74	14.91	14.66	15.41	15.91
27	14.93	17.68	19.52	21.93	19.33	17.50	15.83	14.74	14.66	14.66	15.16	15.91
28	14.93	17.85	19.93	20.52	19.41	17.58	16.16	14.66	14.66	14.66	14.91	15.91
29	15.18	.....	20.52	19.93	19.41	17.58	16.25	14.41	14.66	14.74	14.41	16.00
30	15.52	.....	21.52	19.60	19.58	17.91	16.41	14.25	14.41	15.00	14.25	16.33
31	15.18	.....	21.93	.....	19.58	.....	16.41	14.08	.....	14.74	.....	16.66

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1908.

TABLE No. 103.

Day of the month	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	16.74	17.74	19.58	23 50	21.91	23 25	17.33	15.41	14.25	13.74	12.58	12.91
2	16.58	17.91	19.16	23.74	22.00	23.25	17.25	15.33	14.16	13.74	12.16	12.50
3	16.83	18.08	19.41	23.83	22.66	22.91	17.08	15.25	14.16	13.58	12.08	12.41
4	16.91	17.83	19.66	23.74	22.91	22.74	16.91	15.08	14.08	13.16	12.50	12.08
5	17.00	18.08	19.74	23.33	22.91	22.41	16.74	15.08	13 91	14.00	12.58	12.25
6	17.33	18.08	19.74	23.08	23.08	22.08	16.58	15.00	13.74	13.00	12.33	12.41
7	17.58	18.33	19.74	23.25	23.00	21.66	16.41	14.91	13.74	12.91	12.41	12.58
8	18.33	18.58	19.74	23.25	23.33	21.25	16.00	14.91	13.74	13.08	12.66	15.00
9	19.25	18.41	19.74	23.41	23.50	20.91	16.08	14.83	13.74	13.25	12.83	15.33
10	19.58	18.08	19.33	23.50	23.74	20.58	16.00	14.83	13.83	13.50	13.25	15.58
11	18.91	18.16	19.08	23.66	23.91	20.41	16.00	14.91	14.08	13.66	13.58	15.58
12	18.91	18.58	18.74	24.08	23.91	20.16	16.00	15.08	14.33	13.66	13.25	15.50
13	18.91	18.74	18.83	24.91	24.16	19.91	16.16	15.08	14.41	13.50	12.91	15.58
14	19.41	18.74	18.91	25.16	24.33	19.91	16.25	15.33	14.50	13.08	12.74	15.74
15	19.41	19.16	19.25	25.25	24.41	19.66	16.41	15.50	14.50	13.08	12.16	15.83
16	19.25	19.41	19.50	25.16	24.41	19.66	16.50	15.58	14.16	13.08	12.16	15.74
17	19.16	19.58	19.91	24.91	24.41	19.58	16.50	15.50	13.91	12.83	12.16	15.74
18	19.25	19 74	20.16	24.83	24.25	19.41	16.50	15.33	13.74	12.66	12.25	15.58
19	19.50	19.83	20.16	24.58	24.33	19.08	16.50	15.08	13 58	12.66	12.16	15.33
20	19.58	19.83	20.33	24.58	24.25	19.91	16.58	14.91	13.33	12.66	12.33	15.25
21	19.41	19.91	20.41	24.33	24.25	18.66	16.41	14.58	13.08	12.41	12.25	15.25
22	19.33	19.83	20.41	24.08	24.16	18.58	16.16	14.50	13.16	12.33	12.08	15.33
23	19.66	19.74	20.25	23.66	23.91	18.41	16.00	14.41	13.25	12.33	12.16	15.33
24	18.33	19.74	20.25	23.41	23.66	18.25	15.91	14.33	13.33	12.41	12.41	15.08
25	18.41	19.83	20.41	22.91	23.33	18.16	15.91	14.41	13.41	12.66	13.00	15.16
26	18.41	19.74	20.50	22.08	23.08	17.91	15.41	14.50	13.50	12.91	13.16	15.33
27	18.58	19.74	20.83	21.16	23.00	17.74	15.33	14.66	13.58	13.08	12.74	15.58
28	18.58	19.91	21.41	21.08	23.16	17,66	15.66	14.66	13.83	13.25	12.74	15.58
29	18.08	19.74	22.08	21.25	22.91	17.58	15.58	14.58	13.74	13.25	12.74	15.41
30	17.91	.....	22.83	21.33	23.16	17.41	15.58	14.41	13.66	13.25	12.66	15.16
31	17.74	.....	23.25	.....	23.16	.....	15.41	14.41	.....	13.08	.....	15.16

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1909.

TABLE No. 104.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	15.50	17.08	18.25	19.83	19.83	23.08	16.83	15.74	14.91	16.16	14.25	14.58
2	15.00	16.83	18 16	20.08	19.91	23.00	16.74	16.06	15.08	16.25	14.41	14.83
3	14.83	16.58	18.16	20.25	20 33	22.66	16.83	16.10	15.16	16.33	14.25	14.83
4	15.16	16.58	18 08	20.58	20.50	22.41	17.08	16.16	15.08	16 25	13.91	14.83
5	15.50	16.58	18.00	20.91	20.66	22.08	16.91	16.25	14.91	15.91	13.66	14.41
6	15.66	16.83	17.83	21.33	20.66	22.00	16.83	16.16	14.83	15.33	13.41	13.58
7	15.58	17.25	17.83	22.08	20.74	21.66	16.74	16.16	14.83	15.00	13.25	13.33
8	15.58	17.50	17.83	23.50	20.58	21.25	16.66	16.00	14.58	14 66	13.00	13.25
9	14.50	17.66	17.91	24.66	20.58	20.83	16.58	15.74	14.50	14.50	13.00	12.83
10	14.58	17.50	17.91	25.16	20.74	20.50	16.33	15.66	14.25	14.41	13 00	13.16
11	14.83	17.38	17.91	25.50	21.41	20.08	16.08	15 58	14.33	14.25	13.00	13.33
12	14.25	17.25	17.91	25.33	22.25	19.74	15.91	15.33	14.41	14.50	13.08	13.33
13	14.33	17.08	17.74	25.08	22.74	19.58	15.66	15.16	14.33	14.33	13.50	13.66
14	14.16	17.16	17.74	25.08	23.00	19.33	15.58	15.16	14 50	14.25	13.58	14.41
15	15 00	17.08	17.66	24.74	23.16	19.08	15.58	15.16	14.66	14.25	13.50	14.91
16	15.08	16.91	17.58	24.00	23.33	18.83	15.58	15.00	14.58	14.33	13.33	14.91
17	15 25	16.74	17.58	24.00	23.50	18.58	15.58	15.25	14.58	14.25	13.66	14.74
18	15.58	16.58	17.66	22.74	24.00	18.58	15.58	15.41	14.58	13.91	13.58	14.41
19	15.74	16.41	17.66	22.58	24.41	18.33	15.74	15.41	14.58	13.91	13.58	14.25
20	15.66	16.58	17.66	22.33	24.50	18.25	15.83	15.33	14.50	13.91	13.33	14.50
21	16.00	16.91	17.83	22.16	24.58	18.16	15.74	15.25	14.25	13.74	13.33	15.16
22	16.33	17.16	17.83	21.83	24.50	18.25	15.58	15.08	14.25	13.58	13.41	15.58
23	17.00	17.50	17.83	21.58	24.41	18.25	15.58	14.58	14.16	13.58	13.83	16.16
24	17.50	17.83	17.91	21.33	24.08	18.33	15.58	14.58	14.25	13.50	14 33	16.74
25	17.74	18.16	17.91	21.16	24.00	18.58	15.41	14.41	14.41	13.58	15.33	17.00
26	18.00	18.33	18.16	20.91	23.74	17.83	15.16	14.41	14.50	13.50	15.33	17.16
27	18.00	18.08	18.50	20.50	23.50	17.66	14.83	14.25	14.66	13.50	15.00	17.25
28	17.91	18.16	18.58	20.58	23.33	17.50	14.83	14.33	15.16	13.74	15.00	17.25
29	17.83	.....	18.91	20.00	23.33	17.16	15.00	14.41	15.50	14.00	15.00	16.91
30	17.58	.....	19.33	20.08	23.16	17.00	15.25	14.50	16.08	14.25	14.74	16.74
31	17.38	.....	19.58	.....	23.08	.....	15.50	14.58	.....	14.25	.....	16.58

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1910.

TABLE No. 105.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.58	16.25	15.33	19.91	19.08	16.66	15.08	13.74	13.33	12.74	13.58	14.74
2	16.66	16.08	15.91	20.08	19.91	16.41	15.00	13.66	13.33	12.83	13.66	14.50
3	16.74	16.00	15.91	19.33	19.00	16.58	14.91	13.66	13.58	13.16	13.83	14.25
4	16.83	15.91	16.41	18.66	19.08	16.83	14.91	13.74	13.83	13.08	14.08	13.74
5	16.50	15.83	16.66	18.25	19.16	16.91	14.91	13.74	13.91	13.25	14.33	13.41
6	16.16	15.66	16.83	17.91	19.08	17.00	14.74	14.00	14.16	13.25	14.25	13.41
7	16 33	15.14	17.08	18.00	19.00	17.41	14.74	14.08	14.33	13.83	13.91	13.83
8	16.33	15.08	17.83	18.58	18.91	17.58	14.74	14.16	14.33	14.08	13.66	13.91
9	16.25	15.16	18.08	18.91	18.74	17.74	14.74	14.08	14.16	14.08	13.41	14.08
10	16.16	15.91	18.50	19.16	18.74	17.91	14.83	14.08	14.08	14.08	13.33	14.00
11	16.25	16.08	18.33	19.50	18.74	17.91	14.74	14.08	13.83	13.66	13.33	13.83
12	16.08	15.66	18.33	19.50	18.66	17.74	14.58	14.00	13.58	13.58	13.41	13.83
13	16.16	15.66	18.33	19.25	18.50	17.25	14.33	13.74	13.41	13.41	13.41	14.08
14	16.16	15.66	18.25	18.83	18.25	17.00	14.16	13.66	13.33	13.25	13.50	14.33
15	15.91	15.58	18.25	18.66	17.58	16.91	14.00	13.50	13.08	13.25	13.58	14.58
16	15.74	15.66	18.00	18.33	17.33	16.66	13.91	13.74	13.08	13.25	13.74	15.00
17	15.16	15.50	18.50	18.16	17.08	16.58	13.83	13.33	13.08	13.33	13.83	14.83
18	15.33	15.08	18.16	17.58	16.74	16.33	13.74	13.25	13.41	13.58	13.91	14.66
19	15.66	14.91	16.91	17.41	16.58	16.08	13.83	13.50	13.58	13.83	14.08	14.66
20	16.00	14 74	16.74	17.66	16.58	16.08	13.74	13.50	13.58	14.08	13.74	15.50
21	15.91	14.50	16.83	17.83	16.66	16.00	13.91	13.58	13.66	14.33	13.58	15.66
22	16.25	14.91	17.08	18.16	16.58	15.91	13.91	13.58	13.66	14.41	13.58	15.41
23	16.58	14.91	17.25	18.58	16.50	16.08	13.91	13.74	13 74	14.08	13.41	14.66
24	16.74	14.74	17.74	18.83	16.33	16.08	13.91	13.91	13.58	13.91	13.41	14.41
25	16.91	14.41	18.33	19.08	16.41	15.91	14.00	14.00	13.50	13.66	13.25	14.50
26	17.33	14.50	18.66	19.08	16.50	15.74	14.08	13.50	13 33	13.66	13.25	14.50
27	17.25	14.66	19.16	19.08	16.58	15.50	14.08	13.58	13.16	13.66	13.33	14.33
28	17.16	15.00	19.58	19.25	16.74	15.33	14.16	13.50	12 83	13.41	13.50	14.50
29	17.00	.....	19.91	19.16	16.74	15.25	14.16	13.50	12.74	13.41	13.83	14.83
30	16.91	.....	20 08	19.16	16.83	15.16	14.08	13.50	12.66	13.41	14.50	15.08
31	16.66	.....	20.16	.....	16.83	.....	13.83	13.33	.....	13.50	.....	14.83

ELEVATIONS of St. Lawrence River at Sorel, Que., during the year 1911.

TABEE No. 106.

Day of the month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14 58	15.50	15.66	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	14.58	15.50	15.74	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	14.50	15.83	16.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	15.08	15.91	16.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	14.83	15.91	15.91	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	14.66	16.08	15.83	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	14.41	16.00	15.74	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	14.50	16.00	15.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	14.74	16.00	15.33	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	15.16	16.08	15.16	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	14.83	16.50	15.08	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	14.58	16.66	15.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	14.83	16.74	14.91	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	14.58	16.58	14.91	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	14.66	16.33	14.91	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	14.66	15.83	15.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	14.50	15.58	14.58	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	14.50	15.33	14.41	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	14.66	15.41	14.58	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	14.91	15.58	14.83	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	15.08	15.58	15.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	15.08	15.50	14.83	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	15.00	15 33	14.58	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	14.91	15.33	14.66	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	15.08	15.58	14.41	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	15.25	15.50	14.33	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	15.25	15.41	14.33	.....	.....	.....	.....	.....	.....	.....	.....	.....
28	15.41	16.08	14.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
29	15.41	.....	14.74	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	15.33	.....	14.25	.....	.....	.....	.....	.....	.....	.....	.....	.....
31	15.66	.....	16.08	.....	.....	.....	.....	.....	.....	.....	.....	.....

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PUBLIC WORKS, CANADA.

GEODETIC LEVELLING

LIST OF PROMINENT BENCH MARKS

BETWEEN

HALIFAX, N.S. AND ROUSES POINT, N.Y.

1911

PRINTED BY ORDER OF PARLIAMENT.

OTTAWA
PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S
MOST EXCELLENT MAJESTY
1912

MAY 21ST, 1911.

During the last fiscal year the Geodetic Levelling under the direction of Mr. R. Steckel, Superintending Engineer, has been continued, and the main line of Bench Marks completed between Montreal and Halifax, by Mr. C. F. X. Chaloner, the Engineer in charge.

The final report and results are now being worked out by Mr. Steckel and his staff, but this will not be available for some time yet. Owing to a pressing demand, by other Departments and Engineers connected with Public Works, pending the completion of the final report, it has been decided to publish a list of the most prominent Bench Marks between Rouses Point, N.Y., Montreal, and Halifax, N.S., with their elevations above mean sea level of Atlantic Ocean at Halifax, as deduced by Mr. Chaloner. These elevations may have to be corrected slightly in the final results to be presented by Mr. Steckel, but they are thought to be close enough for all present practical purposes.

(Sgd.)

A. ST. LAURENT.

— SKELETON MAP —
— showing —
— ROUTE OF GEODETIC LEVELLING —
— between —
HALIFAX, N.S. AND ROUSES POINT, N.Y.
1911
Truro
Along I.R.C.
HALIFAX, N.S.
Along I.R.C.
Moncton
Along I.R.C.
Chatham Jct.
Along I.R.C.
Gloucester Jct.
Matapédia
Along I.R.C.
Ste. Flavie
Rivière du Loup
Along Intercolonial Railway
River St. Lawrence
Levis
Aston Jct.
Ste. Angèle
Sorel
Along Q.M.O.&S.Ry.
St. Hilaire
St. John's
Along C.P.R.
St. Lambert
Lachine
ROUSES' POINT, N.Y.

PROMINENT BENCH MARKS

BETWEEN

HALIFAX AND TRURO

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
Mxxiv.	On front of N. 3 storehouse—Prince of Wales Landing, Marine Yard, Halifax, N.S.	.00	10.08
Mxxv.	On stone gateway E. entrance to Marine Yard, Halifax	.11	20.63
Mxxvi.	On S.W. corner of W. entrance of covered I.R.C. station tracks, Halifax	.67	60.64
Mxxvii.	On W. face of chimney of Dry Dock pump house, Halifax	.89	10.04
Mxxviii.	On boulder S. side of I.R.C. and 360 ft. W. of mile post 3, Halifax	3.37	13.38
Mxxix.	On rock W. side of I.R.C. and 1360 ft. N. of station semaphore, Rockingham	4.65	13.80
Mxxx.	On rock E. side of I.R.C. and 810 ft. S. of mile post 7, Prince's Lodge	7.05	15.97
Mxxxi.	On rock W. side of I.R.C. and 615 ft. N. of mile post 8, Bedford, N.S.	8.31	26.42
Mxxxii.	On N. abut. of I.R.C. bridge over Sackville River, Bedford, N.S.	9.04	46.05
Mxxxiii.	On W. face of I.R.C. culvert 1050 ft. N. of mile post 10, Bedford, N.S.	10.41	135.02
Mxxxiv.	On rock E. side of I.R.C.—250 ft. S. of mile post 13, Lakeview, N.S.	13.14	140.52
Mxxxv.	On S. face of I.R.C. tankhouse, Windsor Junction, N.S.	13.99	129.45
Mxxxvi.	On E. end of I.R.C. culvert—690 ft. S. of mile post 16, Windsor Junction, N.S.	16.09	88.30
Mxxxvii.	On W. face of I.R.C. culvert—500 ft. N. of mile post 17, Kinsack, N.S.	17.27	88.45
Mxxxviii.	On N. Wall of I.R.C. bridge over Fall river, Wellington, N.S.	18.39	90.80
Mxxxix.	On E. abut. of I.R.C. bridge over Rawden river, Wellington, N.S.	19.73	86.66
Mxl.	On flat rock S. side of I.R.C.—325 ft. S. of South Semaphore, Wellington	21.42	80.71
Mxli.	On E. face of large bridge culvert E. side of Shubenacadie, Grand Lake	22.89	56.01
Mxlii.	On W. face of I.R.C. culvert—2120 ft. N. of mile post 25, Sandy Cove, N.S.	25.61	50.19
Mxliii.	On S. face of I.R.C. culvert—555 ft. N. of mile post 27, Enfield, N.S.	27.33	43.34
Mxliv.	On N. wall of I.R.C. culvert—84 ft. N. of mile post 29, Enfield, N.S.	29.26	43.00
Mxxiii.	On S. wall of I.R.C. culvert—41 ft. S. of mile post 30, Elmsdale, N.S.	30.26	41.64
Mxxii.	On E. abut. of I.R.C. bridge over Nine mile river, Elmsdale, N.S.	30.66	51.27
Mxxi.	On N. wall of arched culvert—1240 ft. N. of mile post 33, Milford, N.S.	33.50	42.05
Mxx.	On S. wall of I.R.C. culvert—73 ft. N. of mile post 35, Milford, N.S.	35.28	66.42
Mxix.	On W. face of I.R.C. culvert—830 ft. N. of mile post 36, Milford, N.S.	36.41	46.90
Mxviii.	On N. wall of I.R.C. overhead crossing 126 ft. N. of mile post 28, Dewis St.	38.30	35.14
Mxvii.	On N. wall of I.R.C. culvert—200 ft. S. of mile post 39, Shubenacadie, N.S.	39.30	62.56
Mxvi.	On N. abut. of I.R.C. bridge over Shubenacadie river	40.67	46.25
Mxv.	On S.E. face of I.R.C. culvert at mile post 41, Shubenacadie, N.S.	41.27	33.72
Mxiv.	On W. face of I. R. C. culvert—1225 ft. S. of mile post 43, Stewiacke	43.04	35.12
Mxiii.	On S. face of I.R.C. culvert— 215 ft. N. of mile post 44, "	44.33	62.60
Mxii.	On S. abut. of I.R.C. bridge over Stewiacke river, N.S.	46.86	36.72
Mxi.	On S. wall of I.R.C. culvert—615 ft. N. of station, McKay, N.S.	47.57	30.75
Mx.	On W. abut. of I.R.C. bridge over Gould brook, Alton, N.S.	49.43	95.50
Mix.	On E. face of I.R.C. culvert—980 ft. N. of mile post 52, Graham, N.S.	52.51	94.25
Mviii.	On S. abut. of I.R.C. bridge over Meadow brook, Brookfield, N.S.	53.80	94.33
Mvii.	On W. face of I.R.C. culvert—1500 ft. S. of mile post 55, Brookfield	55.03	142.61
Mvi.	On N. abut. of I.R.C. bridge over Meadow brook, Hilden, N.S.	56.74	158.63
Mv.	On S. wall of I.R.C. culvert—860 ft. N. of mile post 58, Hilden, N.S.	58.49	126.22
Miv.	On S. abut. of I.R.C. bridge over Dunlop brook, 1540 ft. N. of post 59, Hilden	59.63	124.62
Miii.	On S. face of culvert opposite Junction of Midland & I.R.C. railway, Truro	61.56	57.00
Cmlxvi.a	On W. abut. of bridge over Fraser river, on spur line to Truro new workshops	62.46	54.81

Datum—mean sea level of Atlantic Ocean.

— SKELETON MAP —
showing
Prominent bench marks between TRURO & HALIFAX
DATUM-mean sea level of Atlantic Ocean.
Dominion Atlantic Railway
Shubenacadie River
HANTS
HALIFAX
TRURO
Salmon R.
B.M. MIII El. 57.00
B.M. MIV. El. 124.62
B.M. MV Elev. 126.22
Hilden
B.M. MVI. Elev 158.63
B.M. MVII Elev. 142.61
Brookfield
Upper Pleasant Valley
B.M. MVIII. El. 94.33
B.M. MIX Elev 94.25
Graham
Omerson Lake
Railway
B.M. MX Elev 95.50
Alton
McKay
B.M. MXI. Elev. 30.75
B.M. MXII. Elev. 38.72
Stewiacke
B.M. MXIII. Elev. 62.60
B.M. MXIV. Elev. 35.12
St Andrews Riv.
Mill Village
Shubenacadie
B.M. MXV. Elev. 33.76
B.M. MXVI. Elev. 46.25
B.M. MXVII. Elev. 62.56
Davis Siding
B.M. MXVIII. Elev. 35.14
Milford Station
B.M. MXIX. Elev. 46.70
Goy Riv.
B.M. MXX. Elev. 66.42
B.M. MXXI. Elev. 42.06
Intercolonial
Elmsdale
B.M. MXXII. Elev. 51.27
B.M. MXXIII Elev. 41.64
B.M. MXLIV Elv. 43.00
B.M. MXLIII Elev. 43.34
Enfield
B.M. MXLII Elev. 50.19
Sandy Cove
Fish
Shubenacadie Grand Lake
Grand Lake
B.M. MXLI Elev. 56.01
Wellington
B.M. MXL Elev. 80.71
B.M. MXXXIX Elev. 86.66
B.M. MXXXVIII Elev. 90.80
Kinsack
B.M. MXXXVII Elev. 88.45
B.M. MXXXVI Elev. 88.30
Windsor Junct.
B.M. MXXXV Elev 129.45
B.M. MXXXIV Elev. 140.52
Lakeview
Rocky Lake
B.M. MXXXIII Elev 135.02
B.M. MXXXII Elev. 46.05
Bedford
B.M. MXXXI Elev. 26.42
B.M. MXXX Elev 15.97
Prince Lodge
Bedford Basin
B.M. MXXIX Elev. 13.80
Rockingham
B.M. MXXVIII Elev 13.32
Fairview
B.M. MXXVII Elev 10.04
B.M. MXXVI Elev 60.64
B.M. MXXV Elev 20.63
B.M. MXXIV Elev 10.08
Cole Harbour
Chezzetcook Ids

PROMINENT BENCH MARKS

BETWEEN

TRURO AND SPRINGHILL JUNCTION

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
CMLXVI.A.	On W. abut. of bridge over Fraser river on spur line to new workshops, Truro, N.S.	62.46	54.81
CMLXVII.	On N. abut. of I.R.C. bridge over brook, 960 ft. N. of mile post 63, Truro, N.S.	63.55	34.78
CMLXVIII.	On S. abut. of I.R.C. bridge over North river, Onslow, N.S.	64.12	38.55
CMLXIX.	On E. end of I.R.C. culvert, 971 ft. N. of mile post 65, Onslow, N.S.	65.53	81.95
CMLXX.	On E. face of I.R.C. culvert, 2137 ft. S. of mile post 67, Hemlock Woods, N.S.	66.95	82.61
CMLXXI.	On S. wall of I.R.C. culvert, 2407 ft. S. of mile post, 68 Hemlock Woods, N.S.	67.88	85.53
CMLXXII.	On S. abut. of I.R.C. bridge over Isgonish river, Belmont, N.S.	69.44	80.93
CMLXXIII.	On E. abut. of I.R.C. bridge over Staple brook, Belmont, N.S.	70.29	92.18
CMLXXIV.	On N. face of I.R.C. culvert—1350 ft. S. of mile post 72, Debert, N.S.	72.11	151.33
CMLXXV.	On W. abut. of I.R.C. bridge over Debert river, Debert, N.S.	73.58	145.37
CMLXXVI.	On W. wall of I.R.C. culvert—750 ft. W. of mile post 74, Debert, N.S.	74.56	156.92
CMLXXVII.	On E. face of I.R.C. culvert—1655 ft. S. of mile post 76, East Mines, N.S.	76.11	185.45
CMLXXVIII.	On N. abut. of I.R.C. bridge over Folleigh river, " " "	76.72	189.16
CMLXXIX.	On S. wall of culvert—117 ft. S. of S. semaphore, Londonderry, N.S.	78.90	324.48
CMLXXX.	On S. wall of I.R.C. culvert—2170 ft. N. of mile post 80, Londonderry, N.S.	80.82	383.33
CMLXXI.	On W. wall of I.R.C. culvert—200 ft. N. of mile post 81, Londonderry, N.S.	81.46	425.78
CMLXXXII.	On W. face of I.R.C. culvert—950 ft. S. of mile post 83, Londonderry, N.S.	83.34	503.83
CMLXXXIII.	On N. wall of I.R.C. culvert—1670 ft. S. of mile post 85, Folleigh, N.S.	85.11	592.73
CMLXXXIV.	On E. wall of I.R.C. culvert—2105 ft. N. of mile post 86, " "	86.83	608.44
CMLXV.	On E. face of I.R.C. culvert—820 ft. N. of mile post 87, " "	87.61	579.04
CMLXIV.	On W. face of I.R.C. culvert—1515 ft. S. of mile post 89, Wentworth, N.S.	89.16	507.86
CMLXIII.	On E. face of I.R.C. culvert—2585 ft. N. of mile post 89, " "	89.95	466.04
CMLXII.	On N. wall of I.R.C. culvert—1742 ft. N. of mile post 90, " "	90.78	461.83
CMLXI.	On S. wall of I.R.C. culvert—372 ft. W. of mile post 93, Giles, N.S.	93.53	399.41
CMLX.	On W. wall of I.R.C. culvert—770 ft. W. of mile post 95, Westchester, N.S.	95.61	319.96
CMLIX.	On S. abut. of I.R.C. bridge over Webb river, Westchester, N.S.	96.36	285.45
CMLVIII.	On E. wall of I.R.C. culvert—1000 ft. W. of milepost 97, Greenville, N.S.	97.66	266.40
CMLVII.	On E. abut. of I.R.C. bridge over Sodalm river, Atkinson's, N.S.	99.01	238.28
CMLVI.	On S. face of I.R.C. culvert—2210 ft W. of mile post 100, Atkinson's, N.S.	100.92	211.68
CMLV.	On E. face of I.R.C. culvert—445 ft. S. of mile post 103, Thompson, N.S.	103.43	151.78
CMLIV.	On W. wall of I.R.C. culvert—283 ft. W. of station, Thompson, N.S.	104.64	99.82
CMLIII.	On S. face of I.R.C. culvert—722 ft. E. of mile post 105, " "	105.36	121.27
CMLII.	On S. face of I.R.C. culvert—345 ft. E. of mile post 106, " "	106.43	103.29
CMLI.	On N. face of I.R.C. culvert—2185 ft. W. of mile post 107, Oxford Junc.	107.92	115.30
CML.	On W. abut. of I.R.C. bridge over Philip river, Oxford Junc., N.S.	109.15	89.66
CMXLIX.	On E. wall of I.R.C. culvert—695 ft. W. of mile post 110, River Philip, N.S.	110.67	165.93
CMXLVIII.	On S. face of I.R.C. culvert—470 ft. W. of mile post 111, " " "	111.63	149.46
CMXLVII.	On N. face of I.R.C. culvert—2000 ft. W. of mile post 112, Clairmont, N.S.	112.90	115.21
CMXLVI.	On E. wall of I.R.C. culvert—1860 ft. E. of mile post 114, Salt Springs, N.S.	114.20	148.80
CMV.	On N. face of I.R.C. culvert—495 ft. W. of mile post 115, " " "	115.65	129.86
CMVI.	On E. wall of I.R.C. culvert—74 ft. S. of mile post 116, " " "	116.54	157.76
CMVII.	On S. wall of I.R.C. culvert—2090 ft. E. of mile post 118, " " "	118.16	231.41
CMVIII.	On S. wall of I.R.C. culvert—49 ft. W. of mile post 119, " " "	119.55	261.79
CMIX.	On W. wall of I.R.C. culvert—168 ft. W. of mile post 120, Springhill, Junc.	120.59	223.33
CMX.	On E. wall of I.R.C. culvert—at water tank, Springhill Junction	121.29	193.99

DATUM—mean sea level of Atlantic Ocean.

SPRINGHILL Junction
B.M. CMX. Elev. 193.99.
B.M. CMIX. Elev. 223.33.
Black River
B.M. CMVIII. Elev. 261.79
B.M. CMVII. Elev. 231.41
B.M. CMVI. Elev. 157.76
B.M. CMV. Elev. 129.86
Salt Springs
B.M. CMXVI Elev. 148.80
B.M. CMXLVII. Elev. 115.21
Clairmont
B.M. CMXLVIII. Elev. 149.46
River Philip
B.M. CMXLIX. Elev. 165.93
B.M. CML. Elev. 89.66
Oxford Junction
B.M. CMLI. Elev. 115.30
B.M. CMLII. Elev. 103.29
B.M. CMLIII. Elev. 121.27
Thompson
B.M. CMLIV. Elev. 99.82
B.M. CMLV Elev. 151.78
B.M. CMLVI. Elev. 211.68
Atkinson
B.M. CMLVII. Elev 238.28
B.M. CMLVIII. Elev. 266.40
Greenville
B.M. CMLIX. Elev. 285.45
Westchester
B.M. C.MLX. Elev. 319.96
St. Giles
B.M. CMLXI. Elev. 399.41
Wentworth
B.M. CMLXII. Elev. 461.83
B.M. CMLXIII. Elev. 466.04
B.M. CMLXIV. Elev. 507.86
B.M. CMLXV. Elev. 579.04
Folleigh
B.M. CMLXXXIV. Elev. 608.44
B.M. CMLXXXIII. Elev. 592.73
B.M. CMLXXXII. Elev. 503.83
B.M. CMLXXXI. Elev. 425.78
B.M. CMLXXX Elev. 383.3
Londonderry
B.M. CMLXXIX. Elev. 374.48
B.M. CMLXXVIII. Elev. 189.16
B.M. CMLXXVII. El. 185.45
East Mines
B.M. CMLXXVI. Elev. 156.92
B.M. CMLXXV. Elev. 145.37
Debert
B.M. CMLXXIV. Elev. 151.33
Belmont
B.M. CMLXXIII. Elev. 92.18
B.M. CMLXXII. Elev. 80.93
Hemlock Woods
B.M. CMLXXI. Elev. 85.53
B.M. CMLXX. Elev. 82.61
B.M. CMLXIX Elev 81.95
Onslow
B.M. CMLXVIII. Elev. 38.59
B.M. CMLXVII. Elev 34.78
B.M. CMLXVI. Elev 54.81
TRURO
CUMBERLAND
COLCHESTER
Minas Basin
SKELETON MAP
showing
Prominent bench marks between SPRINGHILL & TRURO
DATUM - mean sea level of Atlantic Ocean.

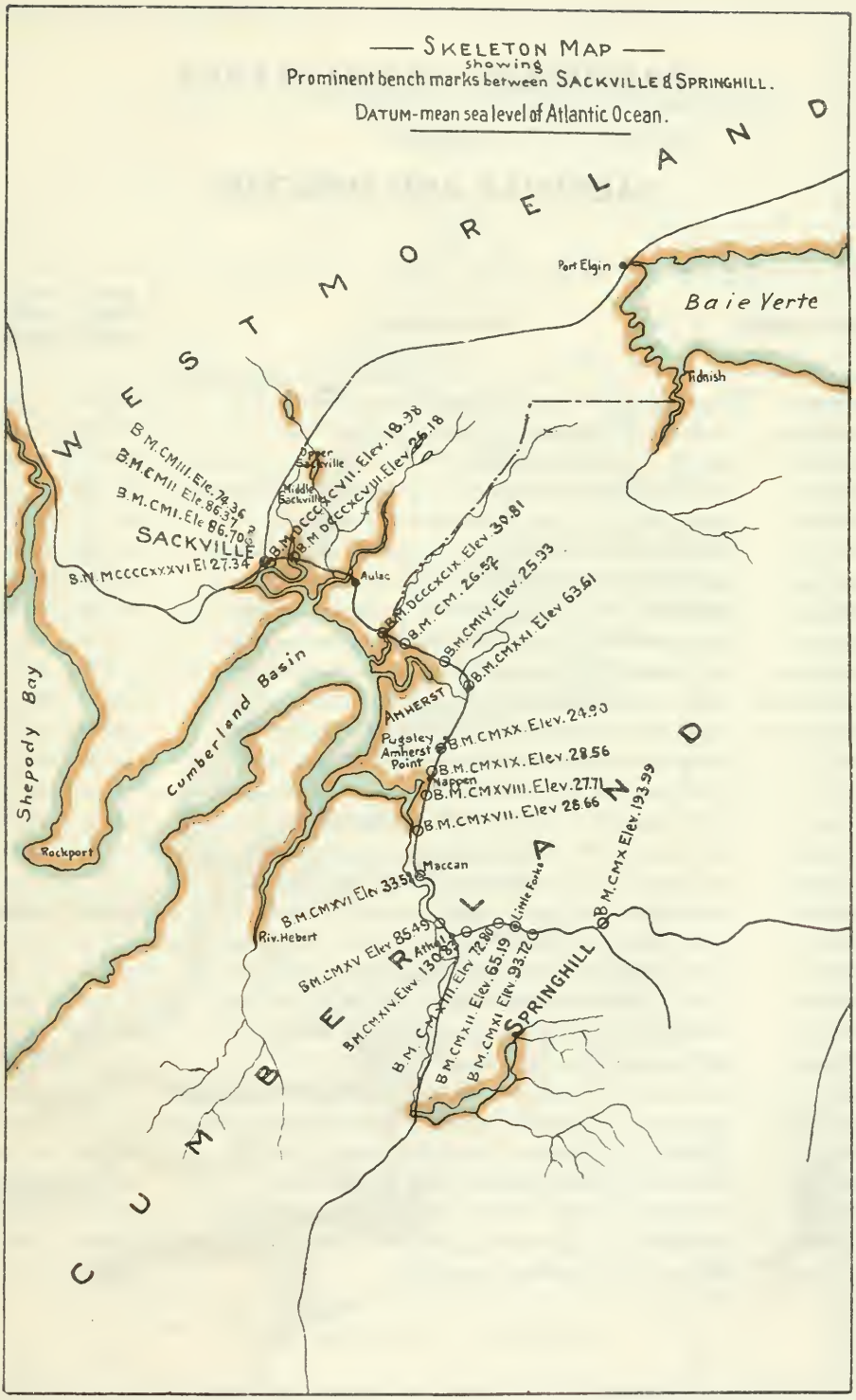
PROMINENT BENCH MARKS

BETWEEN

SPRINGHILL JUNCTION AND SACKVILLE

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
CMX.	On E. wall of I.R.C. culvert—at water tank, Springhill Junction, N.S....	121.29	193.99
CMXI.	On W. face of I.R.C. culvert—710 ft. E. of mile post 124, Little Forks, N.S.	124.22	93.72
CMXII.	On S. abut. of I.R.C. bridge over Little Forks river.....	124.77	65.19
CMXIII.	On S. wall of I.R.C. culvert—628 ft. E. of mile post 125, Little Forks, N.S..	125.44	72.80
CMXIV.	On W. wall of I.R.C. culvert—400 ft. W. of mile post 126, Athol, N.S....	126.65	130.83
CMXV.	On N. wall of I.R.C. culvert—1575 ft. E. of mile post 128, Athol, N.S....	128.27	85.49
CMXVI.	On S. wall of I.R.C. station, Maccan, N.S.....	130.53	33.58
CMXVII.	On W. wall of I.R.C. culvert—977 ft. S. of mile post 132, Maccan, N.S...	132.40	28.66
CMXVIII.	On S. wall of I.R.C. culvert—533 ft. N. of mile post 133, Nappan, N.S...	133.69	27.71
CMXIX.	On S. abut. of I.R.C. bridge over Nappan river, N.S.....	134.59	28.56
CMXX.	On S. abut. of I.R.C. culvert—1040 ft. S. of mile post 135, Pugsley's	135.41	24.90
CMXXI.	On S. wall of I.R.C. subway over Pleasant St., Amherst, N.S.....	138.29	63.61
CMIV.	On N. abut. of I.R.C. bridge over Laplanche river, Amherst, N.S.....	139.44	25.93
CM.	On N. face of I.R.C. culvert—525 ft. S. of Station, Fort Lawrence.....	141.12	26.52
DCCCXCIX.	On N. abut. of I.R.C. bridge over Missisquash river, Aulac, N.B.....	141.90	30.81
DCCCXCVIII.	On N. abut. of I.R.C. bridge over Tantramar river, Sackville, N.S	147.32	26.18
DCCCXCVII.	On N. Wall of I.R.C. culvert—E. end of station, Sackville, N.B.....	148.26	18.98
DCCCCXXXVI.	On E. end wall of new I.R.C. station, Sackville, N.B.....	148.38	27.34
CMI.	On E. end of N. wall of Mount Allison College residence, Sackville, N.B..	149.08	86.69
CMII.	On front of Centennial Hall Building of Mount Allison College, Sackville, N.B.....	149.16	86.36
CMIII.	On front of Science Building of Mount Allison College, Sackville, N.B...	149.17	74.36

DATUM—mean sea level of Atlantic Ocean.


SKELETON MAP
showing
Prominent bench marks between SACKVILLE & SPRINGHILL.
DATUM-mean sea level of Atlantic Ocean.
WESTMORELAND
CUMBERLAND
Baie Verte
Port Elgin
Tidnish
Upper Sackville
Middle Sackville
B.M. DCCCXCVII. Elev. 18.38
B.M. DCCCXCVIII. Elev. 26.18
B.M. CMIII. Ele. 74.36
B.M. CMII Ele. 86.37
B.M. CMI. Ele. 86.70
SACKVILLE
B.M. MCCCCXXXVI El. 27.34
Aulac
B.M. DCCCXCIX. Elev. 30.81
B.M. CM. 26.52
B.M. CMIV. Elev. 25.93
B.M. CMXI. Elev. 63.61
Cumberland Basin
Shepody Bay
AMHERST
Pugsley
Amherst Point
B.M. CMXX. Elev. 24.90
B.M. CMXIX. Elev. 28.56
Napper
B.M. CMXVIII. Elev. 27.71
B.M. CMXVII. Elev. 28.66
Rockport
Maccan
B.M. CMXVI. Elev. 33.51
Riv. Hebert
B.M. CMXV. Elev. 85.49
Athol
B.M. CMXIV. Elev. 130.83
B.M. CMXVII. Elev. 72.80
Little Forks
B.M. CMXII. Elev. 65.19
B.M. CMXI. Elev. 93.72
B.M. CMX. Elev. 193.99
SPRINGHILL

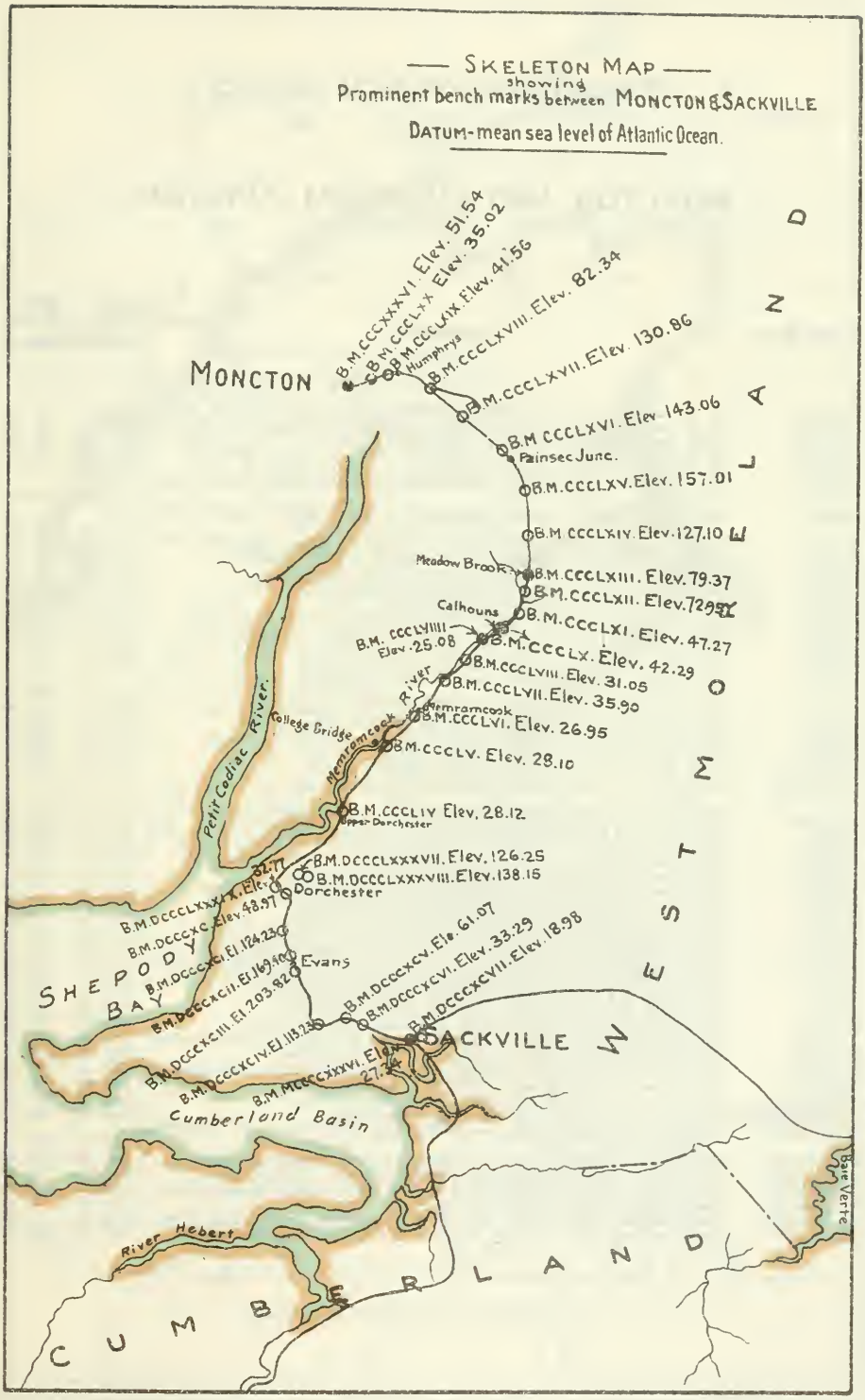
PROMINENT BENCH MARKS

BETWEEN

SACKVILLE AND MONCTON

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
Dccccxcvii.	On N. wall of I.R.C. culvert—E. end of station, Sackville, N.B.	148.26	18.98
Mccccxxxvi.	On E. end of wall of new I.R.C. station, Sackville, N.B.	148.38	27.34
Dccccxcvi.	On S.W. face of I.R.C. culvert—1140 ft. E. of mile post 150, Sackville	150.31	33.29
Dccccxcv.	On S. wall of I.R.C. culvert—1377 ft. E. of mile post 151, Sackville	151.30	61.07
Dccccxciv.	On S. wall of I.R.C. culvert—1175 ft. E. of mile post 152, "	152 28	113.23
Dccccxciii.	On E. end of I.R.C. culvert—1473 ft. W. of mile post 154, Evans	154.80	203.82
Dccccxcii.	On E. wall of I.R.C. culvert—420 ft. N. of mile post 155, Evans	155.58	169.40
Dccccxci.	On N. wall of I.R.C. culvert—364 ft. N. of mile post 156 Dorchester	156 56	124.23
Dccccxc.	On W. wall of I.R.C. bridge over Palmer brook, Dorchester, N.B.	157 97	48.97
Dccclxxxix.	On W wall of I.R.C. overhead crossing of post road, Dorchester, N.B	158 63	32 77
Dccclxxxviii.	On W end wall of stone steps, entrance to Court House, " "	160.37	138.15
Dccclxxxvii.	On N. end wall of Hotel Windsor, Dorchester, N.B.	160.36	126.25
Ccclv.	On N. wall of residence of widow Alice Andrew, Upper Dorchester	162 56	28.12
Ccclv.	On E. abut. of highway bridge over Memramcook river College Bridge	165.52	28.10
Ccclvi.	On E. wall of I.R.C. culvert—S. side of crossing, Memramcook, N.B.	167.31	26.95
Ccclvii	On E. wall of I.R.C culvert—1¾ miles N. of station, Memramcook, N.B.	169.01	35.90
Ccclviii	On S. abut. of I R.C. bridge over brook. Memramcook, N.B.	169.97	31.05
Ccclviiii.	On N. face of I.R.C. culvert—9 mile S. of station, Calhouns, N.B.	171.12	25.08
Ccclx.	On E. wall of I.R.C. culvert—200 ft. N. of station, Calhouns, N.B.	172.08	42.29
Ccclxi.	On N. wall of I.R.C bridge over Memramcook river, " "	172.90	47 27
Ccclxii.	On N. face of I.R.C culvert—½ mile S. of station, Meadow brook	173.83	72 95
Ccclxiii	On N. face of I.R.C. culvert—S. side of crossing, Meadow brook	174.35	79.37
Ccclxiv.	On N. face of I.R.C. culvert—1½ miles N. of station " "	175.80	127.10
Ccclxv.	On S. face of I.R.C. culvert—1.65 miles S of station, Painsec Junction	177.53	157.01
Ccclxvi.	On E. face of I.R.C. culvert—.4 mile W. of station, Painsec Junction, N.B.	179 55	143 06
Ccclxvii.	On W. end of I.R.C. culvert—2 miles W. of station, " " "	181.49	130.86
Ccclxviii.	On E. abut. of I.R.C. bridge over brook, Humphrys, N.B.	183 02	82.34
Ccclxix.	On S.E corner of I.R.C. culvert—¼ mile W. of station, Humphrys	184.65	41.56
Ccclxx	On E. abut. of I.R.C. bridge over branch of Petit Codiac river, Moncton	185.33	35.02
Cccxxxvi.	On N. rear wall of station, Moncton, N.B.	186.37	51.54

DATUM—mean sea level of Atlantic Ocean


SKELETON MAP
showing
Prominent bench marks between MONCTON & SACKVILLE
DATUM-mean sea level of Atlantic Ocean.
MONCTON
B.M. CCCLXXXVI. Elev. 51.54
B.M. CCCLXX Elev. 35.02
B.M. CCCLXIX. Elev. 41.56
Humphrys
B.M. CCCLXVIII. Elev. 82.34
B.M. CCCLXVII. Elev. 130.86
B.M. CCCLXVI. Elev. 143.06
Painsec Junc.
B.M. CCCLXV. Elev. 157.01
B.M. CCCLXIV. Elev. 127.10
Meadow Brook
B.M. CCCLXIII. Elev. 79.37
B.M. CCCLXII. Elev. 72.95
Calhouns
B.M. CCCLXI. Elev. 47.27
B.M. CCCLVIII. Elev. 25.08
B.M. CCCLX. Elev. 42.29
B.M. CCCLVIII. Elev. 31.05
River
B.M. CCCLVII. Elev. 35.90
Memramcook
B.M. CCCLVI. Elev. 26.95
College Bridge
B.M. CCCLV. Elev. 28.10
Petit Codiac River
B.M. CCCLIV Elev. 28.12
Upper Dorchester
B.M. DCCCLXXXVII. Elev. 126.25
B.M. DCCCLXXXVIII. Elev. 138.15
Dorchester
B.M. DCCCLXXXIX. Elev. 32.77
B.M. DCCCXC. Elev. 43.97
B.M. DCCCXCI. El. 124.23
Evans
B.M. DCCCXCII. El. 169.40
B.M. DCCCXCIII. El. 203.82
B.M. DCCCXCIV. El. 118.23
B.M. DCCCXCV. Ele. 61.07
B.M. DCCCXCVI. Elev. 33.29
B.M. DCCCXCVII. Elev. 18.98
SACKVILLE
B.M. DCCCXXXVI. Elev. 27.74
Cumberland Basin
SHEPODY BAY
River Hebert
Baie Verte
CUMBERLAND
WESTMORLAND

PROMINENT BENCH MARKS

BETWEEN

MONCTON AND CHATHAM JUNCTION

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
Cccxxxvi.	On N. rear wall of I.R.C. station, Moncton, N.B.	186.37	51.54
Cccxxxv.	On W. end front of I.R.C. general offices building, Moncton, N.B.	186.51	54.05
Cccxxxiv.	On E. face of I.R.C. culvert, 1.1 miles N. of station, " "	187.47	87.36
Cccxxxiii.	On E. face of I.R.C. culvert—1¾ miles N. of I.R.C. station, Moncton	188.12	66.22
Cccxxxii.	On W. face of I.R.C. culvert—3 miles W. of I.R.C. station, Moncton	189.36	75.22
Cccxxxi.	On W. face of I.R.C. culvert—3¼ miles S. of I.R.C. station, Berry's Mills, N.B.	190.67	122.48
Cccxxx.	On S. face of I.R.C. culvert—2⅓ miles S. of I.R.C. station, Berry's Mills, N.B.	191.64	190.77
Cccxxix.	On E. face of I.R.C. culvert—1 mile S. of I.R.C. station, Berry's Mills, N.B.	192.88	200.69
Cccxxviii.	On N. abut. of I.R.C. bridge culvert—½ mile N. of I.R.C. bridge, " "	194.18	221.40
Cccxxvii.	On W. face of I.R.C. culvert—1¼ miles N. of I.R.C. station, " "	195.11	264.92
Cccxxvi.	On W. face of I.R.C. culvert—1½ miles S. of Catamount Crossing	196.93	272.16
Cccxxv.	On S. abut. of I.R.C. bridge over Cocayne riv., " "	199.54	303.50
Cccxxiv.	On W. face of I.R.C. culvert—.4 mile S. of I.R.C. station, Gallagher's	201.26	320.62
Cccxxiii.	On W. of I.R.C. culvert—.7 mile N. of I.R.C. station, Gallagher, N.B.	202.31	298.35
Cccxxii.	On W. face of I.R.C. culvert—1¼ miles S. of I.R.C. station, Canaan, N.B.	204.18	273.19
Cccxxi.	On E. face of I.R.C. culvert—⅛ mile S. of I.R.C. station, " "	205.28	255.92
Cccxx.	On W. face of I.R.C. culvert over Canaan brook—¾ mile N. of I.R.C. station	206.17	227.40
Cccxix.	On W. face of I.R.C. culvert—2 miles N. of I.R.C. station, Canaan, N.B.	207.45	282.90
Cccxviii.	On N. abut. of I.R.C. bridge over Buctouche river, Canaan, N.B.	208.50	255.85
Cccxvii.	On W. face of I.R.C. culvert, .9 mile S. of I.R.C. station, Birch Ridge	209.89	299.14
Cccxvi.	On W. face of I.R.C. culvert, .4 mile S. of I.R.C. station " "	210.42	295.37
Cccxxxvii.	On E. face of I.R.C. culvert, .9 mile N. of I.R.C. station, " "	211.67	279.07
Cccxxxviii.	On E. face of I.R.C. culvert—2½ miles N. of I.R.C. station, Coal Branch, N.B.	213.17	240.22
Cccxxxix.	On N. abut. of I.R.C. bridge over S. branch of Coal Branch river	213.57	214.46
Cccxl.	On S. abut. of I.R.C. bridge over N. branch of Coal Branch river	214.18	205.42
Cccxli.	On S. abut. of I.R.C. bridge over brook—1½ miles N. of I.R.C. station	215.31	228.04
Cccxlii.	On N. face of I.R.C. culvert—1.2 miles N. of I.R.C. station, Adamsville	218.40	251.23
Cccxliii.	On E. face of I.R.C. culvert—2½ miles N. of I.R.C. station, "	219.56	183.33
Cccxliv.	On S. face of I.R.C. culvert—2⅓ miles S. of I.R.C. station, Harcourt	220.90	174.67
Cccxlv.	On W. wall of I.R.C. culvert—⅜ mile S. of I.R.C. station, "	222.26	162.34
Cccxlvi.	On E. face of I.R.C. culvert—1½ miles N. of I.R.C. station, "	234.18	156.40
Cccxlvii.	On S. abut. of I.R.C. bridge over Richibucto river, Harcourt, N.B.	224.73	125.00
Cccxlviii.	On E. face of I.R.C. culvert—3 miles N. of I.R.C. station, Harcourt, N.B.	226.08	187.35
Cccxlix.	On W. wall of I.R.C. culvert—5¼ miles N. of I.R.C. station, Harcourt, N.B.	228.33	228.82
Cccl.	On E. wall of I.R.C. culvert—2¼ miles S. of I.R.C. station, Kent Junction	229.77	217.06
Ccccli.	On W. face of I.R.C. culvert—1¼ miles S. of I.R.C. station, " "	230.77	224.53
Ccccliii.	On N. wall of I.R.C. culvert—½ mile N. of I.R.C. station, " "	232.35	257.08
Ccccliii.	On S. abut. of I.R.C. bridge over Kouchibouquacsis river	232.99	227.57
Ccccliii.	On W. face of I.R.C. culvert—2⅓ miles N. of I.R.C. station, Kent Junction	234.14	256.45
Ccccliii.	On W. face of I.R.C. culvert—4 miles N. of I.R.C. station, " "	236.00	280.31
Ccccliii.	On E. face of I.R.C. culvert—2½ miles S. of I.R.C. station, Acadieville, N.B.	237.53	269.05
Ccccliii.	On W. face of I.R.C. culvert—140 ft. S. of mile post 239, " "	239.40	285.65
Dcccclxxxiii.	On W. face of I.R.C. culvert—59 ft. N. of mile post 241, " "	241.43	280.38
Dcccclxxxvi.	On S.W. corner of R.C. church, Rogersville, N.B.	242.98	314.98
Dcccclxxxv.	On E. wall of I.R.C. culvert—over Barnaby Brook, ½ mile N. of McPhee Cr'g	244.18	233.11
Dcccclxxxiv.	On N. abut. of I.R.C. bridge over Barnaby river, Rogersville, N.B.	247.25	148.63
Dcccclxxxii.	On N. abut. of I.R.C. bridge over Righthand Brook, Barnaby River	251.17	96.44
Dcccclxxxi.	On W. face of I.R.C. culvert—1735 ft. S. of mile post 253, Barnaby river	253.06	107.96
Dcccclxxix.	On N. abut. of I.R.C. bridge over Barnaby river	254.55	54.34
Dcccclxxviii.	On E. wall of I.R.C. culvert—1140 ft. N. of mile post 255, Barnaby river	255.57	72.29
Dcccclxxvii.	On E. wall of I.R.C. culvert—.6 mile S. of Chatham Junction Station	257.78	125.98

DATUM—mean sea level of Atlantic Ocean.

SKELETON MAP
showing
Prominent bench marks between CHATHAM Jnc & MONCTON.
DATUM-mean sea level of Atlantic Ocean.
NORTHUMBERLAND
KENT
QUEENS
KINGS
WESTMORLAND
CHATHAM Junction
Barnaby River
B.M. DCCCLXXVII. Elev. 125.98
B.M. DCCCLXXVIII. Elev. 72.29
B.M. DCCCLXXIX. Elev. 54.34
B.M. DCCCLXXXI. Elev. 107.96
B.M. DCCCLXXXII. Elev. 96.44
B.M. DCCCLXXXIV. Elev. 148.63
Tunnel
B.M. DCCCLXXXV. Elev. 233.11
B.M. DCCCLXXXVI. Elev. 314.98
Rogersville
B.M. DCCCLXXXIII Elev. 280.57
Acadiville
B.M. CCCLXXIV. Elev. 285.65
B.M. CCCLXXIII. Elev. 269.05
B.M. CCCLXXII. Elev. 280.31
B.M. CCCLXXI. Elev. 256.46
B.M. CCCLIII. Elev. 227.57
B.M. CCCLII. Elev. 257.08
Kent Junction
B.M. CCCLI. Elev. 224.53
B.M. CCCL. Elev. 217.05
B.M. CCCXLIX. Elev. 238.82
B.M. CCCXLVIII. Elev. 187.35
B.M. CCCXLVII. Elev. 125.06
B.M. CCCXLVI. Elev. 166.40
Harcourt
B.M. CCCXLV. Elev. 162.34
B.M. CCCXLIV. Elev. 174.67
B.M. CCCXLIII. Elev. 183.33
B.M. CCCXLII. Elev. 251.23
Adamsville
B.M. CCCXLI. Elev. 228.04
Coal Branch
B.M. CCCXXXIX. Elev. 214.46
B.M. CCCXL. Elev. 205.42
B.M. CCCXXXVIII. Elev. 240.22
B.M. CCCXXXVII. Elev. 279.07
Birch Ridge
B.M. CCCXVI. Elev. 295.37
B.M. CCCXVII. Elev. 299.14
B.M. CCCXVIII. Elev. 255.85
B.M. CCCXIX. Elev. 282.90
B.M. CCCXX. Elev. 227.40
Canaan
B.M. CCCXXI. Elev. 255.92
B.M. CCCXXII. Elev. 273.19
Gallagher's
B.M. CCCXXIII Elev. 298.35
B.M. CCCXXIV. Elev. 320.62
B.M. CCCXXV. Elev. 303.50
Catamount
B.M. CCCXXVI Elev. 272.16
B.M. CCCXXVII. Elev. 264.92
B.M. CCCXXVIII. Elev. 221.40
Berry's Mills 205.69
B.M. CCCXXIX. Elev. 190.77
B.M. CCCXXX. Elev. 120.48
B.M. CCCXXXI. Elev. 75.32
B.M. CCCXXXII. Elev. 66.22
B.M. CCCXXXIII. Elev. 87.36
B.M. CCCXXXIV. Elev. 54.05
B.M. CCCXXXV. Elev. 51.59
B.M. CCCXXXVI. Elev. 51.59
MONCTON

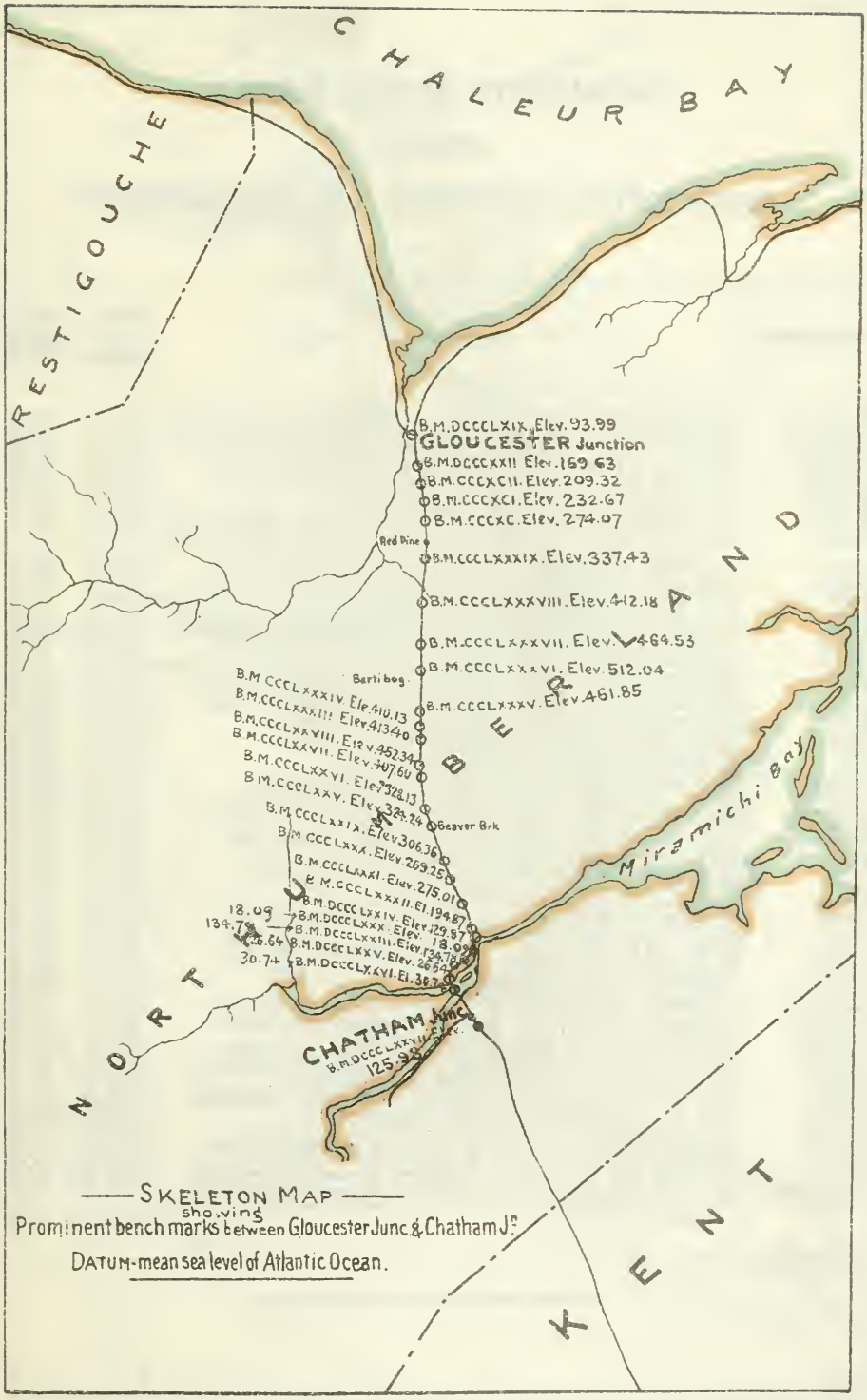
PROMINENT BENCH MARKS

BETWEEN

CHATHAM JUNCTION AND GLOUCESTER JUNCTION

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
Dcccxxvii.	On E. wall of I.R.C. culvert—.6 mile S. of Chatham Junction station	257.78	125.98
Dcccxxvi.	On N. abut. of I.R.C. bridge over S. branch of Miramichi river	260.82	30.74
Dcccxxv.	On N. abut. of I.R.C. bridge over N. branch of Miramichi River	261.58	26.64
Dcccxxii.	On N.E. wall E. side of entrance to I.R.C. round house, New Castle	264.33	134.78
Dcccclxxx.	On real wall of Post Office building, Henry St., New Castle, N.B.	265.31	18.09
Dcccxxiv.	On stone front of R.C. church, New Castle, N.B.	264.75	129.87
Ccclxxxii.	On E. abut. of highway bridge over I.R.C., New Castle, N.B.	266.02	194.87
Ccclxxxi.	On E. face of I.R.C. culvert—1270 ft. N. of mile post 367, Beaver Brook	267.60	275.01
Ccclxxx.	On W. face of I.R.C. culvert—¼ mile S. of mile post 269, Beaver Brook	269.54	269.25
Ccclxxix.	On W. wall of I.R.C. culvert—310 ft. N. of mile post 271, " "	271.21	306 36
Ccclxxv	On W. face of I.R.C. culvert—over Beaver Brook, 592 ft. N. of station	273.88	324.24
Ccclxxvi.	On W. wall of I.R.C. culvert—2 miles N. of station, Beaver Brook	275.75	328.13
Ccclxxvii.	On E. wall of I.R.C. culvert—4⅓ miles N. of I.R.C. station, Beaver Brook	278.12	407.60
Ccclxxviii.	On W. wall of I.R.C. culvert—5¾ miles N. of I.R.C. station, "	279.47	452.34
Ccclxxxiii.	On S. abut. of I.R.C. bridge over Bartibogue River	280.74	413.40
Ccclxxxiv.	On W. wall of large culvert of branch of Bartibogue River	281.87	410.13
Ccclxxxv.	On N.W. corner of culvert—2½ miles S. of I.R.C. station	283.72	461.85
Ccclxxxvi.	On E. wall of culvert—¾ mile N. of I.R.C. station, Bartibogue, N.S.	286.06	512.04
Ccclxxxvii.	On W. wall of I.R.C. culvert—2.7 miles N. of station, " "	287.95	464.53
Ccclxxxviii.	On S wall of I.R.C. culvert.—4⅓ miles S. of station, Red Pine, N.S.	291.03	412.18
Ccclxxxix.	On W. wall of I.R.C. culvert—800 ft. S. of mile post 294, Red Pine, N.S.	294.14	337.43
Cccxc.	On W. wall of I.R.C. culvert—1.6 miles N. of station, Red Pine, N.S.	296.78	274.07
Cccxci.	On S. abut. of I.R.C. bridge over S. branch of Red Pine River	298.39	232.67
Cccxcii.	On S. abut. of I.R.C. bridge over N. branch of Red Pine River	299.87	209.32
Dcccclxxii.	On S. wall of I.R.C. culvert—372 ft. N. of mile post 301, Gloucester Jct.	301.49	169.63
Dcccclxix.	On E. wall of I.R.C. culvert—¼ mile N. of Gloucester Jct. Station	303 71	93.99

DATUM—mean sea level of Atlantic Ocean.



SKELETON MAP
showing
Prominent bench marks between Gloucester Junc & Chatham Jn
DATUM-mean sea level of Atlantic Ocean.

PROMINENT BENCH MARKS

BETWEEN

GLOUCESTER JUNCTION AND MATAPEDIA

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
Dcccclxix.	On E. wall of I.R.C. culvert—¼ mile N. of Gloucester Jct. Station, N.B..	303.71	93.99
Dcccclxviii.	On N. abut. of I.R.C. bridge over Nipisiguit River, Gloucester Jct, N.B..	304.24	88.60
Dcccclxvii.	On N. abut. of I.R.C. bridge over Little River, Gloucester Jct., N.B.....	306.10	62.87
Dcccclxvi.	On S. abut. of I.R.C. bridge over Middle River, Bathurst, N.B.....	306.90	29.33
Dcccclxv.	On E. wall of I.R.C. culvert—.6 mile S. of station, Bathurst, N.B.....	307.95	40.60
Dcccclxxi.	On W. side wall of R.C. church, Bathurst, N.B.....	309.58	25.16
Dcccclxx.	On N.E. corner of Post Office building, Bathurst, N.B.....	309.58	22.17
Cccxv.	On N. wall of I.R.C. culvert—⅛ mile S. of I.R.C. station, Bathurst, N.B..	308.48	35.11
Cccxiv.	On N. abut. of I.R.C. overhead crossing—.7 mile N. of I.R.C. station, Bathurst, N.B.....	309.32	59.93
Cccxiii.	On E. wall of I.R.C. culvert—2⅛ miles S. of Beresford station, N.B.....	312.82	48.70
Cccxii.	On N. abut. of I.R.C. bridge over Grant brook, Beresford, N.B.....	314.20	39.77
Cccxi.	On N. abut. of I.R.C. bridge over Mill stream, " "	314.92	28.35
Cccx.	On N. wall of I.R.C. culvert—1 mile S. of Nigadoo, N.B.....	316.18	44.43
Cccix.	On S. abut. of I.R.C. bridge over brook—.6 mile N. of station, Nigadoo...	317.70	48.53
Cccviii.	On S. wall of I.R.C. culvert—1.7 miles S. of Petites Roches station.....	318.30	65.30
Cccvii.	On S. wall of I.R.C. culvert—⅛ mile N. of " " "	320.16	80.74
Cccvi.	On S. wall of I.R.C. culvert—.7 mile S. of Elm tree flag station.....	321.63	67.39
Cccv.	On N. wall of I.R.C. culvert—2 miles S. of Green point flag station.....	323.30	87.99
Ccciv.	On S. abut. of I.R.C. bridge over brook—½ mile N. of Green Point.....	325.34	79.28
Ccciii.	On E. wall of I.R.C. culvert—1 mile N. of Green point station.....	326.08	73.95
Cccii.	On N. wall of I.R.C. culvert—¼ mile S. of station, Belledune.....	327.76	84.25
Ccci.	On S. wall of I.R.C. culvert—1 mile N. of station, "	329.02	110.70
Ccc.	On S. wall of I.R.C. culvert at Hodjin's Crossing.....	331.51	127.47
Cclxxxv.	On E. wall of I.R.C. culvert—½ mile S. of Culligan's Station.....	333.12	123.24
Cclxxxvi.	On W. wall of I.R.C. culvert—.9 mile N. of Culligan's Station.....	334.47	115.96
Cclxxxvii.	On W. face of I.R.C. culvert—¼ mile S. of station, Jacquet River.....	336.75	40.54
Cclxxxviii.	On S. abut. of I.R.C. bridge over Jacquet River.....	338.16	14.18
Cclxxxix.	On W. wall of I.R.C. culvert—⅛ mile S. of station, Nash's Creek.....	340.36	19.93
Ccxc.	On S. abut. of I.R.C. bridge over Nash's Creek.....	340.93	13.83
Ccxci.	On N. wall of I.R.C. culvert—.9 mile S. of Dickie flag station.....	342.83	47.75
Ccxcii.	On S. abut. of I.R.C. bridge over Dickie Brook.....	343.71	35.12
Ccxciii.	On S. abut. of I.R.C. bridge over New Mills Brook, N.B.....	346.46	32.24
Ccxciv.	On E. wall of I.R.C. culvert—1½ miles N. of station, New Mills.....	347.93	24.19
Ccxcv.	On S.W. corner of I.R.C. culvert—1⅛ miles S. of station, Charlo, N.B....	351.40	17.51
Ccxcvi.	On W. wall of I.R.C. culvert—1 mile N. of station, Charlo, N.B.....	353.58	42.57
Ccxcvii.	On N. wall of I.R.C. culvert—1.4 miles N. of Craig's flag station.....	355.95	66.39
Ccxcviii.	On N. abut. of I.R.C. bridge over Eel River.....	358.00	23.61
Ccxcix.	On W. wall of post office building, Dalhousie, N.B.....	367.40	21.28
Cclxxxii.	On S. wall of I.R.C. culvert—.6 mile W. of station, Eel River, N.B.....	358.71	33.49
Cclxxxiii.	On N. wall of I.R.C. culvert—⅓ mile W. of station, Dalhousie, N.B.....	366.75	18.82
Cclxxxiv.	On S. shore of Island—210 ft. E. of Gov't wharf, " "	367.44	4.55
Cclxxxi.	On W. face of culvert—350 ft. E. of main line, Dalhousie Junction.....	361.78	76.58
Cclxxx.	On E. wall of I.R.C. culvert—425 ft. W. of mile post 363, Dalhousie Jct....	363.42	68.80
Cclxxix.	On W. wall of I.R.C. culvert—⅛ mile W. of mile post 366, " " ...	366.82	37.61
Cclxxv	On N. face of I.R.C. culvert—⅛ mile W. of mile post 372, Campbellton.....	372.40	43.17
Cclxxiv.	On N.W. corner of I.R.C. culvert—312 ft. S. mile post 374, "	374.24	39.43
Ccclxxiii.	On S. abut. of I.R.C. bridge over brook, Moffatt, N.B.....	376.45	30.32
Cclxxii.	On W. wall of I.R.C. culvert—75 ft. S. of mile post 380, Flat lands	380.28	47.33
Cclxxi.	On rock along post road—1000 ft. S. of Restigouche River, N.B.....	383.27	129.90
Cclxx.	On E. side of S. abut. of I.R.C. bridge over Restigouche River, N.B....	383.52	47.90
Mcccccxxxiv.	On N. face of S. abut. of I.R.C. bridge over Restigouche River, N.B....	383.54	28.87
Cclviii.	On W. face of R. abut. of I.R.C. bridge over Restigouche River, Matapedia, Que.....	383.74	44.58

DATUM—mean sea level of Atlantic Ocean.

RIMOUSKI
MATAPEDIA
RESTIGOUCHE
NORTHUMBERLAND
GLOUCESTER
GLOUCESTER BAY
Caraquet Ry
Flat Lands
Moffatt
Campbellton
Dalhousie Junction
Dalhousie
Eel R.
Craig
Charlo
New Mills
Dickie
Nash's Creek
Jacquet Riv
Culligan's
Belledune
Green Point
Elm Tree
Petites Roches
Nigadoo
Beresford
Bathurst
Bathurst Jun
B.M.CCLVIII. Elev. 44.58
B.M.CCLXX. Elev. 47.90 (B.M.MCCCCXXXIV. Elev. 28.87)
B.M.CCLXXI. Elev. 129.90
B.M.CCLXXII. Elev. 47.33
B.M.CCLXXIII. Elev. 30.32
B.M.CCLXXIV. Elev. 39.43
B.M.CCLXXV. Elev. 43.17
B.M.CCLXXVI. Elev. 44.83
B.M.CCLXXVII. Elev. 22.24
B.M.CCLXXVIII. Elev. 117.01
B.M.CCLXXIX. Elev. 37.61
B.M.CCLXXX. Elev. 68.80
B.M.CCLXXXI. Elev. 76.58
B.M.CCLXXXII. El. 33.49
B.M.CCXCVIII. Elev. 23.61
B.M.CCXCVII. Elev. 66.39
B.M.CCLXXXIII. Elev. 18.82
B.M.CCLXXXIV. Elev. 4.55
B.M.MCCXCIX. Elev. 21.28
B.M.CCXCVI. Elev. 42.57
B.M.CCXCV. Elev. 17.31
B.M.CCXCIV. Elev. 24.19
B.M.CCXCIII. Elev. 38.24
B.M.CCXCII. Elev. 35.12
B.M.CCXCI. Elev. 47.75
B.M.CCXC. Elev. 13.83
B.M.CCLXXXIX. Elev. 19.93
B.M.CCLXXXVIII. Elev. 14.18
B.M.CCLXXXVII. Elev. 40.54
B.M.CCLXXXVI. Elev. 115.96
B.M.CCLXXXV. Elev. 123.24
B.M.CCC. Elev. 127.47
B.M.CCCI. Elev. 110.51
B.M.CCCII. Elev. 84.25
B.M.CCCIII. Elev. 73.95
B.M.CCCIV. Elev. 79.28
B.M.CCCV. Elev. 87.99
B.M.CCCVI. Elev. 67.39
B.M.CCCVII. Elev. 80.74
B.M.CCCVIII. Elev. 65.30
B.M.CCCIX. Elev. 48.53
B.M.CCCX. Elev. 44.43
B.M.CCCXI. Elev. 28.35
B.M.CCCXII. Elev. 39.77
B.M.CCCXIII. Elev. 48.70
B.M.CCCXIV. Elev. 59.93
B.M.CCCXV. Elev. 35.11
B.M.DCCCLXV. Elev. 40.60
B.M.DCCCLXVI. El. 29.33
B.M.DCCCLXVII. El. 62.87
B.M.DCCCLXVIII. El. 88.60
B.M.DCCCLXX. Elev. 22.17
B.M.DCCCLXXI. Elev. 25.16
B.M.DCCCLXIX. Elev. 93.99
SKELETON MAP
showing
Prominent bench marks between MATAPEDIA & GLOUCESTER Jc.
DATUM-mean sea level of Atlantic Ocean.

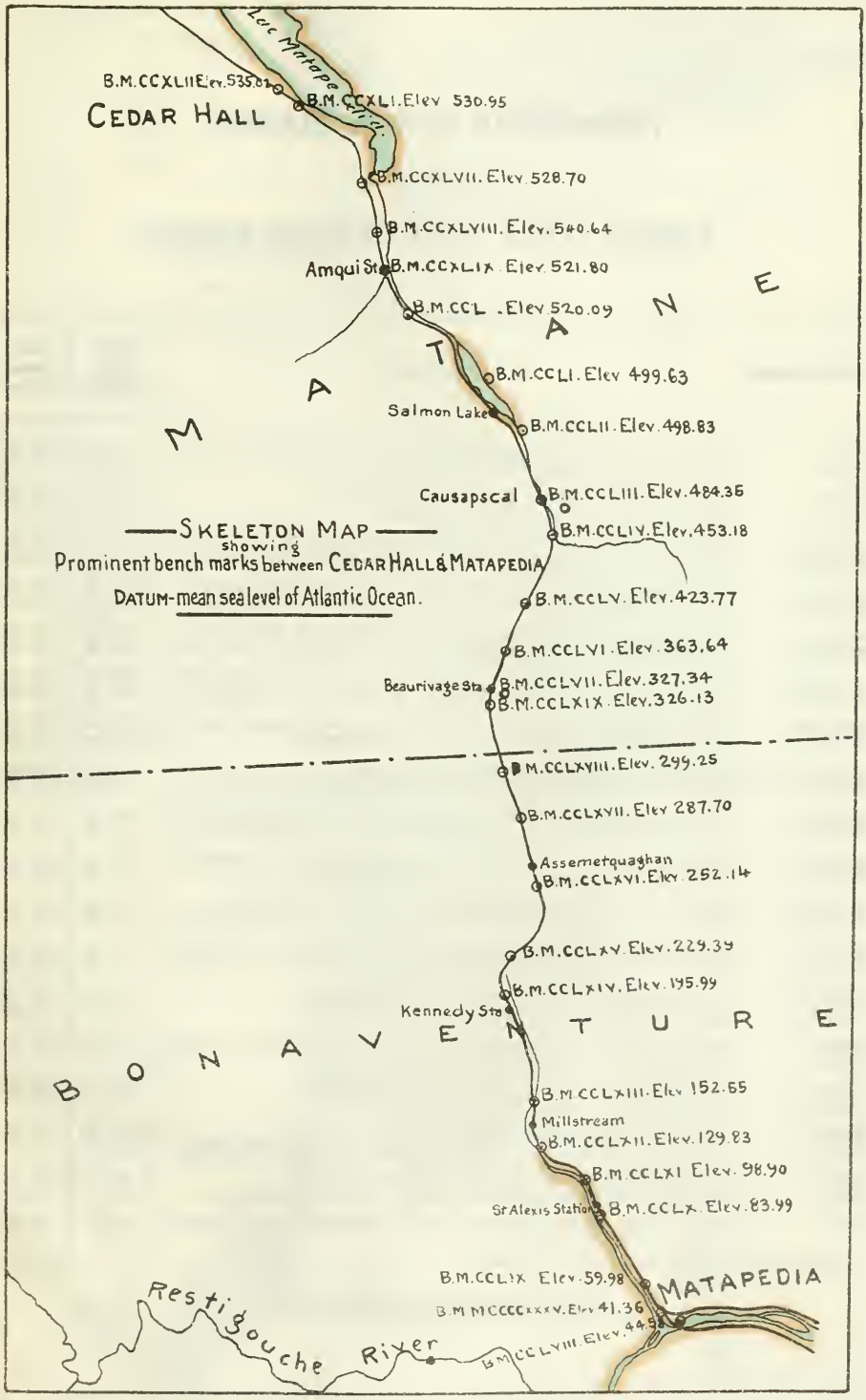
PROMINENT BENCH MARKS

BETWEEN

MATAPEDIA AND CEDAR HALL

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
CCLVIII.	On W. face of N abut. of I.R.C. bridge over Restigouche River, Matapedia, P.Q.	383.74	41.58
MCCCCXXXV.	On N.E. abut. of Mercier Bridge over Matapedia River, P.Q.	384.56	41.36
CCLIX.	On N. wall of I.R.C. bridge over Lagacé brook, Matapedia, P.Q.	386.11	59.98
CCLX.	On N. abut. of I.R.C. bridge over Clark's brook, St. Alexis Station	389.13	83.99
CCLXI.	On S. abut. of I.R.C. bridge over brook—½ mile W. of mile post 390	390.86	98.90
CCLXII.	On S. abut. of I.R.C. bridge over brook—1600 ft S. of mile post 393	392.90	129.83
CCLXIII.	On S.E. abut. of I.R.C. bridge over Matapedia River, Millstream, P.Q	395.18	152.55
CCLXIV.	On S. wall of I.R.C. culvert—2000 ft. N. of mile post 399, Kennedy St., P.Q.	399.77	195.99
CCLXV.	On S. abut. of I.R.C. bridge over McKinnon River, P.Q.	401.49	229.39
CCLXVI.	On N. wall of I.R.C. culvert—1⅛ miles S. of Station, Assemetquaghan	404.08	252.14
CCLXVII.	On W. wall of I.R.C. culvert—¼ mile S. of mile post 407, "	407.17	287.70
CCLXVIII.	On S. wall of I.R.C. culvert—¼ mile N. of mile post 408, "	408.72	299.25
CCLXIX.	On N. wall of I.R.C. culvert—285 ft. S. of mile post 411, Beaurivage	411.36	326.13
CCLVII.	On rock 50 ft. E. of post road in Mr. Rouleau's field, E. side Matapedia Riv.	411.60	327.34
CCLVI.	On N. abut. of I.R.C. bridge over Matapedia River, Beaurivage, P.Q.	413.66	363.64
CCLV.	On N.W. wall of I.R.C. culvert—at mile post 416, Causapscal, P.Q.	416.53	423.77
CCLIV.	On N.E. abut. of I.R.C. bridge over Matapedia River, Causapscal, P.Q.	418.89	453.18
CCLIII.	On stone front of R.C. church, Causapscal, P.Q.	419.34	484.35
CCLII.	On E. side of post road opposite the property of A. Lavoie, Salmon L.	423.25	498.83
CCLI.	On solid rock E. side of post road on property of Jean Cuyn,, Salmon L.	426.08	499.63
CCL.	On E. side of post road on property of Joseph Simon, Salmon Lake	430.83	520.09
CCXLIX.	On N.W. abut. of I.R.C. bridge over Amqui River, Amqui, P.Q.	432.81	521.80
CCXLVIII.	On rock S. side of I.R.C.—1¼ mile W. of Amqui Post Office	434.74	540.64
CCXLVII.	On N. wall of I.R.C. culvert—900 ft. E. of post 43-67 of Matapedia road	437.49	528.70
CCXLVI.	On N.E. corner of I.R.C. culvert—2000 ft. E. of station, Cedal Hall, P.Q.	441.77	530.95
CCXLII.	On N.W. corner of Raoul Blais' store, Cedar Hall, P.Q.	442.15	535.02

DATUM—mean sea level of Atlantic Ocean.


Lac Matapedia
B.M.CCXLII Elev. 535.02
B.M.CCXLI. Elev 530.95
CEDAR HALL
B.M.CCXLVII. Elev. 528.70
B.M.CCXLVIII. Elev. 540.64
Amqui Sta
B.M.CCXLIX. Elev. 521.80
B.M.CCL. Elev. 520.09
M A T A P E D I A
B.M.CCLI. Elev 499.63
Salmon Lake
B.M.CCLII. Elev. 498.83
Causapscal
B.M.CCLIII. Elev. 484.35
B.M.CCLIV. Elev. 453.18
SKELETON MAP
showing
Prominent bench marks between CEDAR HALL & MATAPEDIA
DATUM-mean sea level of Atlantic Ocean.
B.M.CCLV. Elev. 423.77
B.M.CCLVI. Elev. 363.64
Beaurivage Sta
B.M.CCLVII. Elev. 327.34
B.M.CCLXIX. Elev. 326.13
B.M.CCLXVIII. Elev. 299.25
B.M.CCLXVII. Elev 287.70
Assemetquaghan
B.M.CCLXVI. Elev. 252.14
B.M.CCLXV. Elev. 229.39
B.M.CCLXIV. Elev. 195.99
Kennedy Sta
B O N A V E N T U R E
B.M.CCLXIII. Elev 152.65
Millstream
B.M.CCLXII. Elev. 129.83
B.M.CCLXI Elev. 98.90
St Alexis Station
B.M.CCLX. Elev. 83.99
B.M.CCLIX Elev. 59.98
MATAPEDIA
B.M.M.CCCCXXXV. Elev 41.36
B.M.CCLVIII. Elev. 44.95
Restigouche River

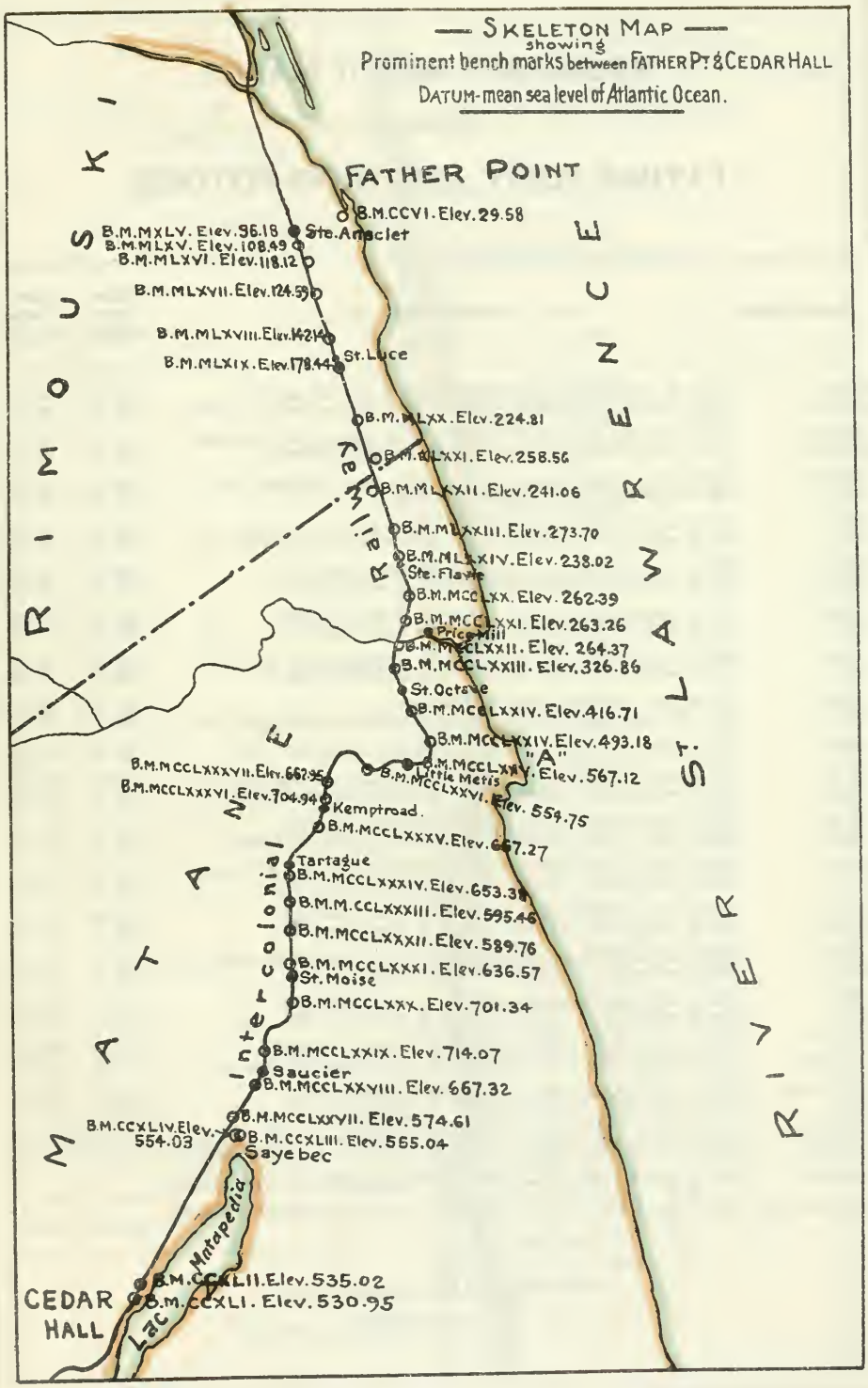
PROMINENT BENCH MARKS

BETWEEN

CEDAR HALL AND FATHER POINT

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
CCXLI.	N.E. corner of I.R.C. culvert—2000 ft. E. of station, Cedar Hall, P.Q....	441.77	530.95
CCXLII.	On N.W. corner of Raoul Blais' store, Cedar Hall, P.Q.....	442.15	535.02
CCXLIII.	On S.E. rear corner of new R.C. church, Sayebec, P.Q.....	449.04	555.04
CCXLIV.	On E. wall of priest residence, Sayebec, P.Q.....	449.04	554.03
MCCLXXVII.	On W. wall of I.R.C. culvert—1590 ft. W. of mile post 447, Sayebec, P.Q..	450.41	574.61
MCCLXXVIII.	On W. wall of I.R.C. culvert—1955 ft. W. of mile post 449, Saucier.....	452.47	667.32
MCCLXXIX.	On W. wall of I.R.C. culvert—1574 ft. E. of mile post 451, Saucier....	453.80	714.07
MCCLXXX.	On rock S. side of I.R.C.—165 ft. E. of mile post 453, St. Moise, P.Q.....	456.06	701.34
MCCLXXXI..	On E. abut. of I.R.C. bridge over Tartague River, St. Moise, P.Q.....	457.41	636.57
MCCLXXXII	On E. wall of I.R.C. culvert—1024 ft. W. of mil post 456, St. Moise, P.Q..	459.28	589.76
MCCLXXXIII.	On W. wall of I.R.C. culvert—2360 ft. E. of mile post 458, St. Moise, P.Q..	460.58	595.46
MCCLXXXIV.	On E. wall of I.R.C. culvert—2143 ft. E. of mile post 459, Tartague.....	461.68	653.38
MCCLXXXV.	On E. wall of I.R.C. culvert—560 ft. E. of mile post 461, Kempt Road.....	463.91	667.27
MCCLXXXVI.	On W. face of I.R.C. culvert—2285 ft. W. of mile post 463, " "	465.49	704.94
MCCLXXXVII.	On N. face of I.R.C. culvert—36 ft. W. of mile post 463, " " ...	466.08	662.95
MCCLXXVI.	On rock S. side of I.R.C.—2525 ft. W. of mile post 465, Little Metis.....	468.54	554.75
MCCLXXV.	On flat rock S.E. corner of Hotel Roy—78 ft. W. of I.R.C., Little Metis..	469.95	567.12
MCCLXXIV. A.	On S. face of I.R.C. culvert—2140 ft. W. of mile post 468, Little Metis...	471.47	493.18
MCCLXXIV.	On E. wall of I.R.C. culvert—625 ft. E. of mile post 470, St. Octave, P.Q..	472.90	416.71
MCCLXXIII.	On W. wall of I.R.C. culvert—1200 ft. E. of mile post 472, " " ..	474.79	326.86
MCCLXXII.	On W. abut. of I.R.C. bridge over Metis River, Price Mill, P.Q.....	475.96	264.37
MCCLXXI.	On S. wall of I.R.C. culvert—780 ft. E. of mile post 474, Price Mill, P.Q..	476.84	263.26
MCCLXX.	On E. wall of I.R.C. culvert—440 ft. E. of mile post 475, Ste. Flavie, P.Q..	477.93	262.39
MLXXIV.	On E. wall of I.R.C. culvert—2763 ft. E. of mile post 477, " " ..	479.49	238.02
MLXXIII.	On N. face of I.R.C. culvert—1833 ft. W. of mile post 477, " " ..	480.35	273.70
MLXXII.	On S. wall of I.R.C. culvert—1160 ft. E. of mile post 479, " " ..	482.01	241.06
MLXXI.	On W. wall of I.R.C. culvert—700 ft. W. of mile post 480, Ste. Luce, P.Q..	483.14	258.56
MLXX.	On E. wall of I.R.C. culvert—1678 ft. E. of mile post 482, " " ..	484.71	224.81
MLXIX.	On E. wall of I.R.C. culvert—405 ft. E. of mile post 484, " " ..	486.95	178.44
MLXVIII.	On W. wall of I.R.C. culvert—246 ft. W. of mile post 485, " " ..	488.08	142.14
MLXVII.	On E. wall of I.R.C. culvert—346 ft. W. of mile post 486, " " ..	489.12	124.59
MLXVI.	On W. wall of I.R.C. culvert—608 ft. E. of mile post 487, St. Anaclet.....	489.67	118.12
MLXV.	On N. face of I.R.C. culvert—63 ft. W. of mile post 488, "	491.01	108.49
MXLV.	On N.W. corner stone foundation of I.R.C. station, St. Anaclet.....	492.45	96.18
CCVI.	On N.W. angle buttress of Ste. Anne de la Pointe aux Pères R.C. church..	494.87	29.58

DATUM—mean sea level of Atlantic Ocean.



SKELETON MAP
showing
Prominent bench marks between FATHER PT & CEDAR HALL
DATUM-mean sea level of Atlantic Ocean.
FATHER POINT
B.M.CCVI. Elev. 29.58
B.M.MXLV. Elev. 96.18
Ste. Anaclet
B.M.MLXV. Elev. 108.49
B.M.MLXVI. Elev. 118.12
B.M.MLXVII. Elev. 124.59
B.M.MLXVIII. Elev. 142.14
B.M.MLXIX. Elev. 178.44
St. Luce
B.M.MLXX. Elev. 224.81
B.M.MLXXI. Elev. 258.56
B.M.MLXXII. Elev. 241.06
B.M.MLXXIII. Elev. 273.70
B.M.MLXXIV. Elev. 238.02
Ste. Flavie
B.M.MCCLXX. Elev. 262.39
B.M.MCCLXXI. Elev. 263.26
Price Mill
B.M.MCCLXXII. Elev. 264.37
B.M.MCCLXXIII. Elev. 326.86
St. Octave
B.M.MCCLXXIV. Elev. 416.71
B.M.MCCLXXIV. Elev. 493.18
"A"
B.M.MCCLXXV. Elev. 567.12
Little Metis
B.M.MCCLXXVI. Elev. 554.75
B.M.MCCLXXXVII. Elev. 662.95
B.M.MCCLXXXVI. Elev. 704.94
Kemptroad.
B.M.MCCLXXXV. Elev. 667.27
Tartague
B.M.MCCLXXXIV. Elev. 653.38
B.M.M.CCLXXXIII. Elev. 595.46
B.M.MCCLXXXII. Elev. 589.76
B.M.MCCLXXXI. Elev. 636.57
St. Moise
B.M.MCCLXXX. Elev. 701.34
B.M.MCCLXXIX. Elev. 714.07
Saucier
B.M.MCCLXXVIII. Elev. 667.32
B.M.MCCLXXVII. Elev. 574.61
B.M.CCXLIV. Elev. 554.03
B.M.CCXLIII. Elev. 565.04
Sayebec
Lac Matapedia
B.M.CCXLII. Elev. 535.02
B.M.CCXLI. Elev. 530.95
CEDAR HALL
RIMOUSKI
MATANE
Intercolonial Railway
ST. LAWRENCE
RIVER

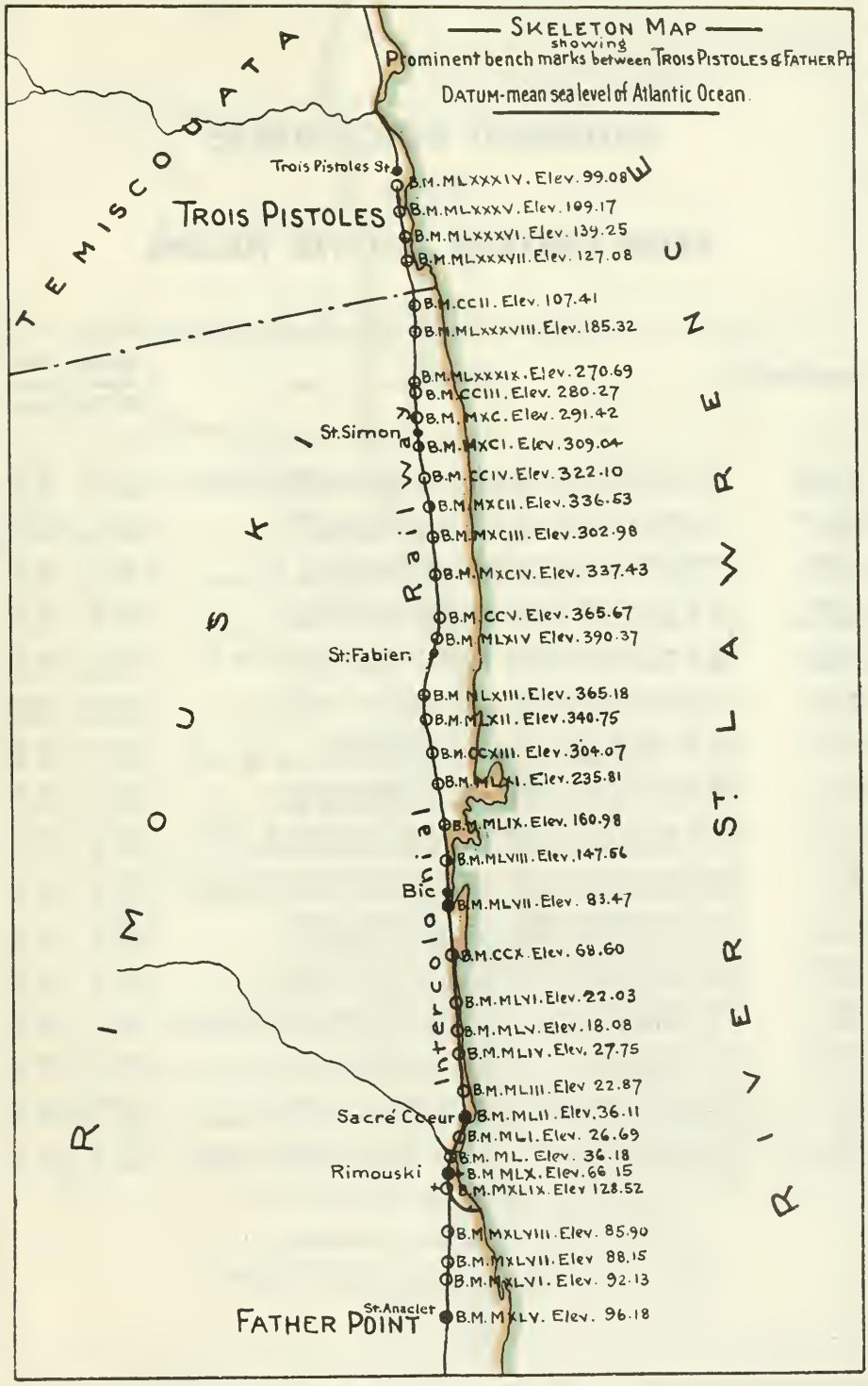
PROMINENT BENCH MARKS

BETWEEN

FATHER POINT AND TROIS PISTOLES

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
MXLV.	On N.W. corner of stone foundation I.R.C. station, St. Anaclet	492.45	96.18
MLVXI.	On E. wall of I.R.C. culvert—1458 ft. W. of mile post 490, St. Anaclet	493.22	92.13
MXLVII.	On E. wall of I.R.C. culvert—1630 ft. W. of mile post 491, Rimouski	493.61	88.15
MXLVIII.	On W. wall of I.R.C. culvert—1435 ft. W. of mile post 492, "	495.24	85.90
MXLIX.	On E. side of main entrance to Ursuline Convent, Rimouski. P.Q	496.82	128.52
MLX.	On rear wall of Bishop's Palace, Rimouski, P.Q	497.36	66.15
ML.	On E. abut. of I.R.C. bridge over Rimouski River	497.92	36.18
MLI.	On E. wall of I.R.C. culvert—596 ft. E. of mile post 496, Sacré Cœur	498.93	26.69
MLII.	On E. wall of I.R.C. culvert—230 ft. W. of mile post 497, "	499.98	36.11
MLIII.	On W. wall of I.R.C. culvert—370 ft. E. of mile post 498, "	500.85	22.87
MLIV.	On W. wall of I.R.C. culvert—120 ft. E. of mile post 499, "	501.90	27.75
MLV.	On E. wall of I.R.C. culvert—260 ft. W. of mile post 500, "	502.98	18.08
MLVI.	On W. wall of I.R.C. culvert—230 ft. E. of mile post 501, Bic, P.Q	503.85	22.03
CCX.	On E. wall of I.R.C. culvert—2140 ft. E. of mile post 503, " "	505.50	68.60
MLVII.	On W. abut. of I.R.C. bridge over Bic River	507.28	83.47
MLVIII	On solid rock S. side of I.R.C.—90 ft. E. of mile post 506, Bic, P.Q	508.87	147.56
MLIX.	On rock S. side of I.R.C.—65 ft W. of mile post 507, Bic, P.Q	509.92	160.98
MLXI.	On N. wall of I.R.C. culvert—1290 ft. E. of mile post 509, Bic, P.Q	511.64	235.81
CCXIII.	On E. wall of I.R.C. culvert—375 ft. E. of mile post 510, St. Fabien	512.80	304.07
MLXII.	On N. face of I.R.C. culvert—1075 ft. W. of mile post 511, "	514.15	340.75
MLXII	On E. abut. of I.R.C. bridge over South West River, St. Fabien	515.24	365.18
MLXIV.	On S. wall of I.R.C. culvert—1793 ft. E. of mile post 515, St. Fabien	517.49	390.37
CCV.	On N. wall of I.R.C. culvert—910 ft. E. of mile post 516, "	518.69	365.67
MXCIV.	On W. face of I.R.C. culvert—874 ft. E. of mile post 517, "	519.68	337.43
MXCIII.	On W. wall of I.R.C. culvert—1830 ft. E. of mile post 519, "	521.51	302.98
MXCII.	On E. wall of I.R.C. culvert—214 ft. E. of mile post 520, St. Simon	522.79	336.53
CCIV.	On E. wall of I.R.C. culvert—362 ft. E. of mile post 521, "	523.78	322.10
MXCI.	On E. wall of I.R.C. culvert—1267 ft. E. of mile post 522, "	524.61	309.04
MXC.	On W. wall of I.R.C. culvert—2141 ft. W. of mile post 523, "	526.24	291.42
CCIII.	On rock 80 ft. S. of S.W. corner of R.C. church, St. Simon	527.33	280.27
MLXXXIX.	On S. face of I.R.C. culvert—2066 ft. E. of mile post 525, St. Simon	527.43	270.69
MLXXXVIII.	On W. wall of I.R.C. culvert—873 ft. E. of mile post 527 "	529.73	185.32
CCII.	On N. wall of I.R.C. culvert—188 ft. W. of mile post 528, "	530.88	107.41
MLXXXVII.	On E. wall of I.R.C. culvert—121 ft. W. of mile post 529, Trois Pistoles	531.84	127.08
MLXXXVI.	On W. wall of I.R.C. culvert—352 ft. E. of mile post 530, Trois Pistoles	532.77	139.25
MLXXXV.	On W. wall of I.R.C. culvert—253 ft. W. of mile post 531, Trois Pistoles, P.Q	533.87	109.17
MLXXXIV.	On N. wall of I.R.C. culvert—580 ft. W. of mile post 532, Trois Pistoles, P.Q	534.93	99.08

DATUM—mean sea level of Atlantic Ocean.


SKELETON MAP
showing
Prominent bench marks between TROIS PISTOLES & FATHER PT.
DATUM-mean sea level of Atlantic Ocean.
TEMISCOUATA
RIMOUSKI
ST. LAWRENCE RIVER
Trois Pistoles St.
TROIS PISTOLES
B.M. MLXXXIV. Elev. 99.08
B.M. MLXXXV. Elev. 109.17
B.M. MLXXXVI. Elev. 139.25
B.M. MLXXXVII. Elev. 127.08
B.M. CCII. Elev. 107.41
B.M. MLXXXVIII. Elev. 185.32
B.M. MLXXXIX. Elev. 270.69
B.M. CCIII. Elev. 280.27
B.M. MXC. Elev. 291.42
St. Simon
B.M. MXCI. Elev. 309.04
B.M. CCIV. Elev. 322.10
B.M. MXCII. Elev. 336.53
B.M. MXCIII. Elev. 302.98
B.M. MXCIV. Elev. 337.43
B.M. CCV. Elev. 365.67
B.M. MLXIV Elev. 390.37
St. Fabien
B.M. MLXIII. Elev. 365.18
B.M. MLXII. Elev. 340.75
B.M. CCXIII. Elev. 304.07
B.M. MLXI. Elev. 235.81
B.M. MLIX. Elev. 160.98
B.M. MLVIII. Elev. 147.56
Bic
B.M. MLVII. Elev. 83.47
B.M. CCX. Elev. 68.60
B.M. MLVI. Elev. 22.03
B.M. MLV. Elev. 18.08
B.M. MLIV. Elev. 27.75
B.M. MLIII. Elev 22.87
Sacré Coeur
B.M. MLII. Elev. 36.11
B.M. MLI. Elev. 26.69
B.M. ML. Elev. 36.18
Rimouski
B.M. MLX. Elev. 66.15
B.M. MXLIX. Elev 128.52
B.M. MXLVIII. Elev. 85.90
B.M. MXLVII. Elev 88.15
B.M. MXLVI. Elev. 92.13
St. Anaclet
FATHER POINT
B.M. MXLV. Elev. 96.18
Intercolonial Railway

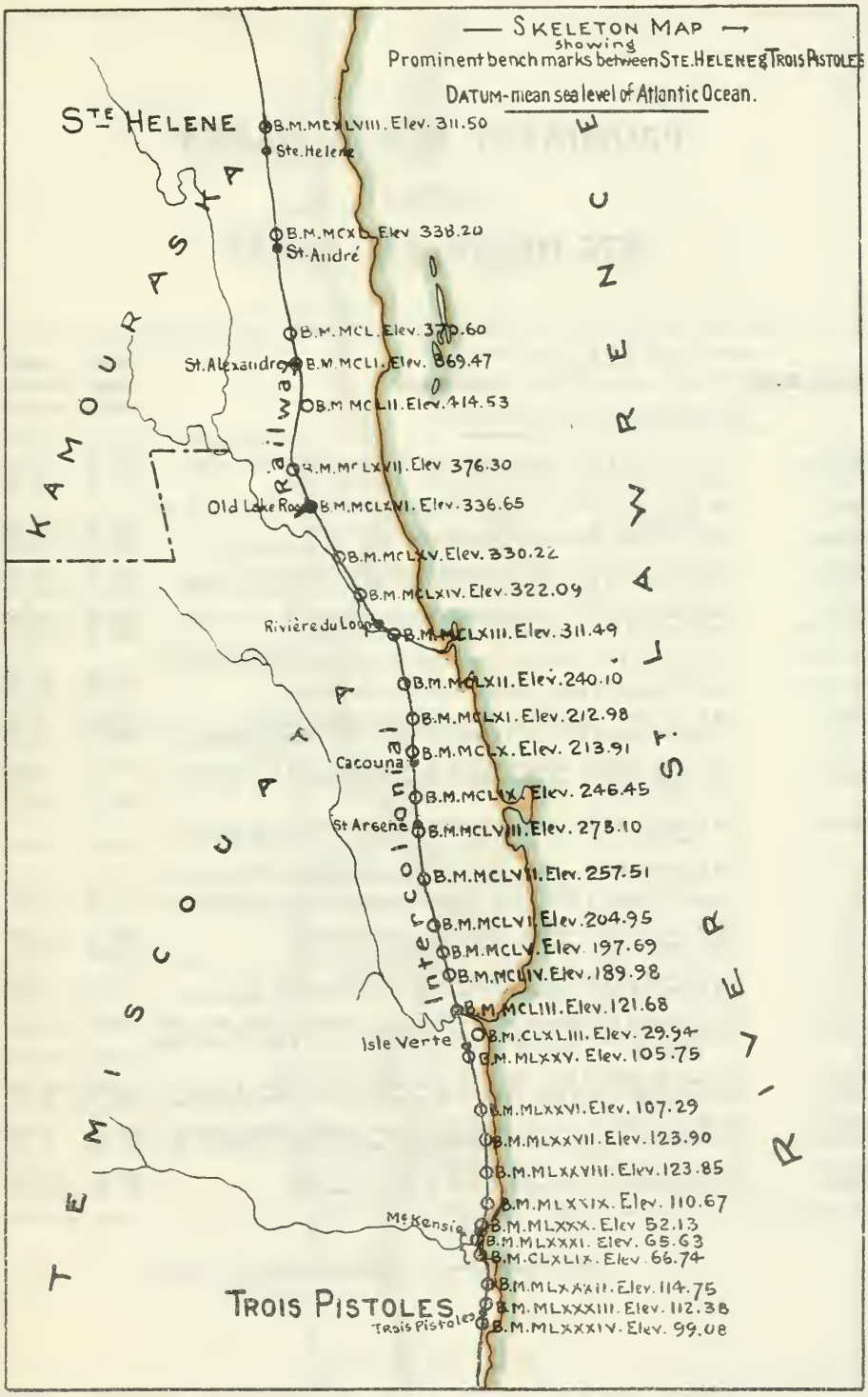
PROMINENT BENCH MARKS

BETWEEN

TROIS PISTOLES AND STE. HELENE

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
MLXXXIV.	On N. wall of I.R.C. culvert—580 ft. W. of mile post 532, Trois Pistoles..	534.93	99.08
MLXXXIII.	On W. abut. of I.R.C. bridge—380 ft. E. of mile post 533, " "	535.76	112.38
MLXXXII.	On S. face of I.R.C. culvert—2060 ft. E. of mile post 534, " " ..	536.44	114.75
CLXLIX.	On W. abut. of I.R.C. bridge over Trois Pistoles River.....	538.19	66.74
MLXXXI.	On W. abut. of I.R.C. bridge over Trois Pistoles River.....	538.19	65.63
MLXXX.	On S. wall of I.R.C. bridge—600 ft. W. of mile post 536, McKenzie.....	538.89	52.13
MLXXIX.	On W. wall of I.R.C. culvert—285 ft. W. of mile post 537, "	539.84	110.67
MLXXVIII.	On E. wall of I.R.C. culvert—1685 ft. W. of mile post 538, "	541.11	123.85
MLXXVII.	On E. wall of I.R.C. culvert—1452 ft. E. of mile post 540, Isle Verte...	542.51	123.90
MLXXVI.	On E. wall of I.R.C. culvert—972 ft. W. of mile post 541, " "	543.94	107.29
MLXXV.	On E. wall of I.R.C. culvert—520 ft. W. of mile post 543, " "	545.88	105.75
CLXLIII.	On S.W. corner of R.C. church, Isle Verte.....	546.85	29.94
MCLIII.	On W. abut. of I.R.C. bridge over Rivière Verte	547.30	121.68
MCLIV.	On W. wall of I.R.C. culvert—275 ft. E. of mile post 546, Isle Verte....	548.75	189.98
MCLV.	On W. wall of I.R.C. culvert—650 ft. E. of mile post 547, " "	549.76	197.69
MCLVI.	On E. wall of I.R.C. culvert—250 ft. E. of mile post 548, " "	550.74	204.95
MCLVII.	On N. face of I.R.C. culvert—657 ft. E. of mile post 550, St. Arsène.....	552.65	257.51
MCLVIII.	On E. wall of I.R.C. culvert—740 ft. E. of station, St. Arsène.....	554.33	275.10
MCLIX.	On E. wall of I.R.C. culvert—1120 ft. E. of mile post 553, St. Arsène ...	555.56	245.45
MCLX.	On E. wall of I.R.C. culvert—1930 ft. E. of mile post 555, Cacouna.....	557.41	213.91
MCLXI.	On E. wall of I.R.C. culvert—630 ft. E. of mile post 556, "	558.65	212.98
MCLXII.	On W. wall of I.R.C. culvert—304 ft. W. of mile post 557, "	559.78	240.10
MCLXIII.	On E. abut. of I.R.C. bridge over Rivière du Loup, P.Q.....	561.96	311.49
MCLXIV.	On N. end of I.R.C. culvert—1465 ft. E. of mile post 562.....	564.47	322.09
MCLXV.	On E. abut. of bridge over brook—1200 ft. W. of post 563, Riv. du Loup..	566.00	330.22
MCLXVI.	On S. wall of I.R.C. culvert—2405 ft. W. of mile post 565, Old Lake Road.	568.22	336.65
MCLXVII.	On E. wall of I.R.C. culvert—814 ft. E. of mile post 567, " " " ..	569.71	376.30
MCLII.	On W. wall of I.R.C. culvert—690 ft. W. of mile post 569, St. Alexandre..	571.89	414.53
MCLI.	On E. end corner of S. wall of I.R.C. station, St. Alexandre.....	573.89	369.47
MCL.	On E. wall of I.R.C. culvert—69 ft. E. of mile post 572, St. Alexandre...	574.72	370.60
MCXL.	On S. wall of I.R.C. culvert—90 ft. E. of mile post 576, St. André.....	578.75	338.20
MCXLVIII.	On N. wall of I.R.C. culvert—54 ft. W. of mile post 580, Ste. Helène....	582.78	311.50

DATUM—mean sea level of Atlantic Ocean.


— SKELETON MAP —
showing
Prominent bench marks between STE. HELENE & TROIS PISTOLES
DATUM-mean sea level of Atlantic Ocean.
STE HELENE
B.M.MCXLVIII. Elev. 311.50
Ste. Helene
B.M.MCXL. Elev 338.20
St. André
B.M.MCL. Elev. 370.60
St. Alexandre
B.M.MCLI. Elev. 369.47
B.M.MCLII. Elev. 414.53
B.M.MCLXVII. Elev 376.30
Old Lake Road
B.M.MCLXVI. Elev. 336.65
B.M.MCLXV. Elev. 330.22
B.M.MCLXIV. Elev. 322.09
Rivière du Loup
B.M.MCLXIII. Elev. 311.49
B.M.MCLXII. Elev. 240.10
B.M.MCLXI. Elev. 212.98
Cacouna
B.M.MCLX. Elev. 213.91
B.M.MCLIX. Elev. 246.45
St Arsene
B.M.MCLVIII. Elev. 278.10
B.M.MCLVII. Elev. 257.51
B.M.MCLVI. Elev. 204.95
B.M.MCLV. Elev. 197.69
B.M.MCLIV. Elev. 189.98
B.M.MCLIII. Elev. 121.68
Isle Verte
B.M.CLXLIII. Elev. 29.94
B.M.MLXXV. Elev. 105.75
B.M.MLXXVI. Elev. 107.29
B.M.MLXXVII. Elev. 123.90
B.M.MLXXVIII. Elev. 123.85
B.M.MLXXIX. Elev. 110.67
McKensie
B.M.MLXXX. Elev 52.13
B.M.MLXXXI. Elev. 65.63
B.M.CLXLIX. Elev. 66.74
B.M.MLXXXII. Elev. 114.75
B.M.MLXXXIII. Elev. 112.38
Trois Pistoles
B.M.MLXXXIV. Elev. 99.08
TROIS PISTOLES
KAMOURASKA
TEMISCOUATA
Intercolonial Railway
ST. LAWRENCE RIVER

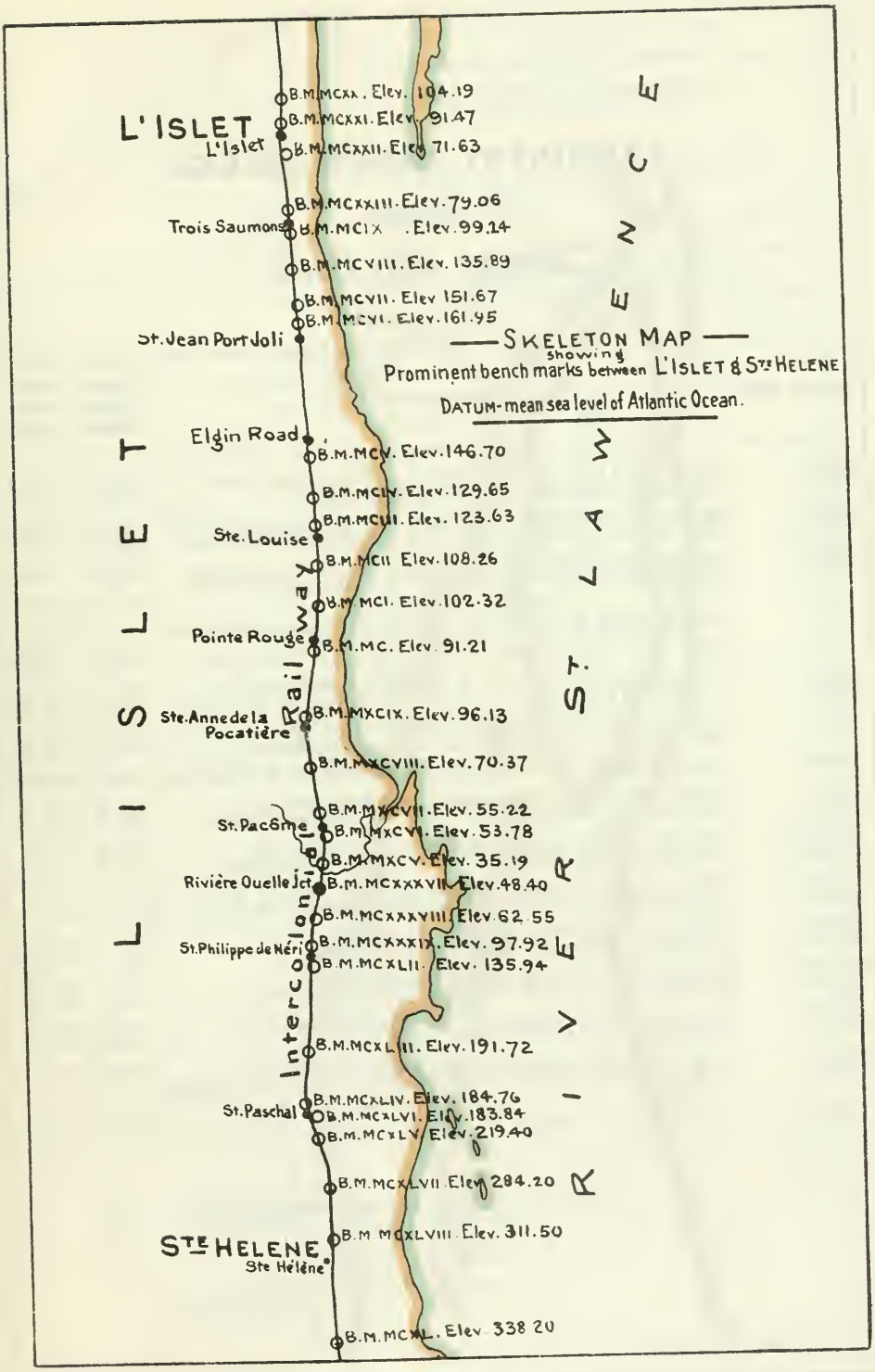
PROMINENT BENCH MARKS

BETWEEN

STE. HELENE AND L'ISLET

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
McXLVIII.	On N. wall of I.R.C. culvert—54 ft. W. of mile post 580, Ste. Hélène ..	582.78	311.50
McXLVII.	On E. wall of I.R.C. culvert—540 ft. E. of mile post 582, "	584.66	284.20
McXLV.	On W. abut. of I.R.C. bridge over brook—1725 ft. E. of post 584, St. Paschal, P.Q.	586.41	219.40
McXLVI.	On N.W. corner R.C. church, St. Paschal, P.Q.	587.92	183.84
McXLIV.	On S. face of I.R.C. culvert at mile post 185, St. Paschal, P.Q.	587.75	184.76
McXLIII.	On E. abut. of I.R.C. bridge over brook—1864 ft. E. of mile post 588...	590.40	191.72
McXLII.	On N. face of I.R.C. culvert—1583 ft. W. of station, St. Philippe de Néri..	593.65	135.94
McXXXIX.	On S. face of I.R.C. culvert—365 ft. E. of mile post 592, " " ..	594.72	97.92
McXXXVIII.	On N. face of I.R.C. culvert—1022 ft. W. of mile post 593, St. Philippe de de Néri	595.93	62.55
McXXXVII.	On N.E. corner of I.R.C. station, Rivière Ouelle Junction	597.02	48.40
McXCV.	On E. abut. of I.R.C. bridge over E. branch of Rivière Ouelle	597.54	35.19
McXCVI.	On rock N. side of I.R.C. and 536 ft. W. of mile post 596, St. Pacôme....	598.89	53.78
McXCVII.	On E. wall of I.R.C. culvert—180 ft. E of mile post 579 St. Pacôme ...	599.71	55.22
McXCVIII.	On E. wall of I.R.C. culvert—1200 ft. E. of mile post 599, Ste. Anne de la Pocatière	601.51	70.37
McXCIX	On W. abut. of I.R.C. bridge over Petite Rivière St. Jean, Ste. Anne de la Pocatière	603.35	96.13
Mc.	On E. wall of I.R.C. culvert—2055 ft. W. of mile post 603, Pointe Rouge, P.Q.	606.12	91.21
McI.	On rock S. side of I.R.C.—54 ft. E. of mile post 605, Ste. Louise, P.Q....	607.72	102.32
McII	On W. wall of I.R.C. culvert—2075 ft. E. of mile post 607, "	609.36	108.26
McIII	On N. wall of I.R.C. culvert—995 ft. W. of mile post 608, "	610.92	123.63
McIV	On W. abut. of I.R.C. bridge over Rivière Ferrée	611.85	129.65
McV.	On N. wall of I.R.C. culvert—1745 ft. E. of mile post 611, Elgin Rd....	613.40	146.70
McVI.	On N. face of I.R.C. culvert—965 ft. W. of mile post 615, St. Jean Port Joli.	618.89	161.95
McVII.	On W. abut. of I.R.C. bridge over brook—326 ft. E. of post 617, St. Jean Port Joli	619.63	151.67
McVIII.	On rock N. side of I.R.C.—80 ft. W. of mile post 618, St. Jean Port Joli..	620.85	135.89
McIX.	On rock 78 ft. N. of I.R.C.—1525 ft. E. of mile post 620, Trois Saumons..	622.47	99.24
McXXIII.	On E. wall of I.R.C. culvert—2090 ft. E. of mile post 621, Trois Saumons..	623.33	79.06
McXXII.	On N. face of I.R.C. culvert—2260 ft. E. of mile post 625, L'Islet, P.Q..	625.39	71.63
McXXI.	On W. wall of I.R.C. culvert—1950 ft. E. of mile post 624, " " ..	626.37	91.47
McXX.	In S. face of I.R.C. culvert—1200 ft. E. of mile post 625, " " ..	627.51	104.19

DATUM—mean sea level of Atlantic Ocean.


L'ISLET
L'Islet
B.M.MCXX. Elev. 104.19
B.M.MCXXI. Elev. 91.47
B.M.MCXXII. Elev. 71.63
B.M.MCXXIII. Elev. 79.06
Trois Saumons
B.M.MCIX. Elev. 99.14
B.M.MCVIII. Elev. 135.89
B.M.MCVII. Elev 151.67
B.M.MCVI. Elev. 161.95
St. Jean Port Joli
SKELETON MAP
showing
Prominent bench marks between L'ISLET & STE HELENE
DATUM-mean sea level of Atlantic Ocean.
Elgin Road
B.M.MCV. Elev. 146.70
B.M.MCIV. Elev. 129.65
B.M.MCIII. Elev. 123.63
Ste. Louise
B.M.MCII Elev. 108.26
B.M.MCI. Elev. 102.32
Pointe Rouge
B.M.MC. Elev. 91.21
Ste. Anne de la Pocatière
B.M.MXCIX. Elev. 96.13
B.M.MXCVIII. Elev. 70.37
B.M.MXCVII. Elev. 55.22
St. Pacôme
B.M.MXCVI. Elev. 53.78
B.M.MXCV. Elev. 35.19
Rivière Ouelle Jct.
B.M.MCXXXVII. Elev. 48.40
B.M.MCXXXVIII. Elev. 62.55
St. Philippe de Néri
B.M.MCXXXIX. Elev. 97.92
B.M.MCXLII. Elev. 135.94
B.M.MCXLIII. Elev. 191.72
St. Paschal
B.M.MCXLIV. Elev. 184.76
B.M.MCXLVI. Elev. 183.84
B.M.MCXLV. Elev. 219.40
B.M.MCXLVII. Elev. 284.20
STE HELENE
Ste Hélène
B.M.MCXLVIII. Elev. 311.50
B.M.MCXL. Elev. 338.20
L'ISLET
Intercolonial Railway
ST. LAWRENCE RIVER

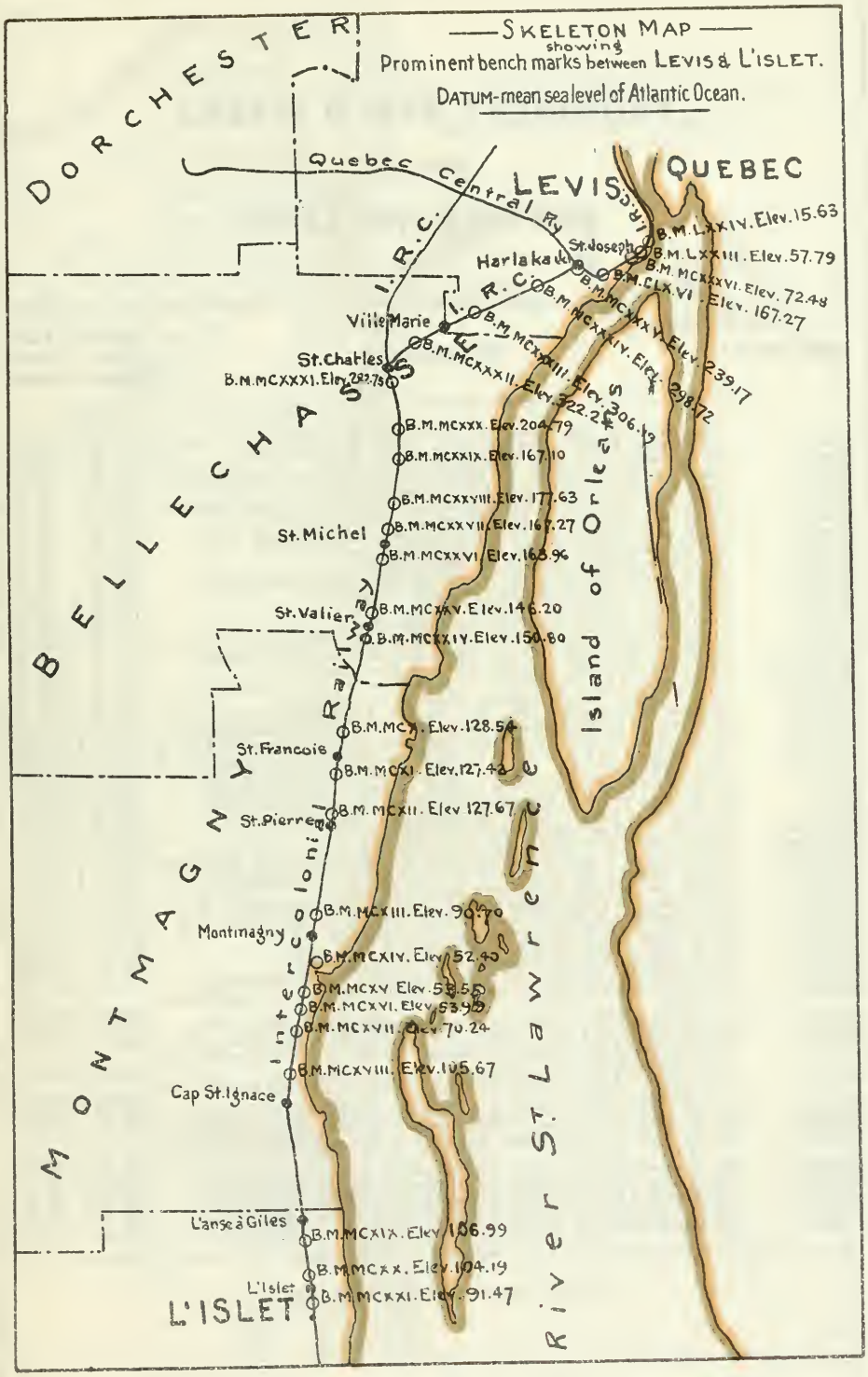
PROMINENT BENCH MARKS

BETWEEN

L'ISLET AND LEVIS

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
Mcxxi.	On W. wall of I.R.C. culvert—1950 ft. E. of mile post 624, L'Islet.....	626.37	91.47
Mcxx.	On S. face of I.R.C. culvert—1200 ft. E. of mile post 625, "	627.51	104 19
Mcxix.	On W. wall of I.R.C. culvert—1420 ft. W. of mile post 626, L'anse à Giles..	629.03	106.99
Mcxviii.	On S. wall of I.R.C. culvert—72 ft. W. of mile post 632, Cap St. Ignace..	634.84	105.67
Mcxvii.	On rock S. side of I.R.C.—348 ft. W. of mile post 634, Cap St. Ignace....	636.85	70.24
Mcxvi.	On large boulder N. side of I.R.C.—493 ft. E. of mile post 635, Cap St. Ignace.....	637.85	53.99
Mcxv.	On large boulder N. side of I.R.C.—1970 ft. E. of mile post 636, Montmagny, P.Q	638.43	53.55
Mcxiv.	On W. abut. of I.R.C. bridge over Rivière du Sud, Montmagny, P.Q....	639.90	52.40
Mcxiii.	On S. wall of I.R.C. culvert—E. of mile post 639, Montmagny, P.Q.....	641.81	90.70
Mcxii.	On E. wall of I.R.C. culvert—2174 ft. E. of mile post 643, St. Pierre....	645.39	127.67
Mcxi.	On N. face of I.R.C. culvert—950 ft. W. of mile post 644, St. François...	647.00	127.42
Mcx.	On N. wall of I.R.C. culvert—440 ft. E. of mile post 646, " ...	648.71	128.54
Mcxxiv.	On E. wall of I.R.C. culvert—2775 ft. W. of mile post, 649, St. Valier, P.Q	652.30	150.80
Mcxxv.	On W. wall of I.R.C. culvert—926 ft. E. of mile post 651, " "	653.60	146.20
Mcxxvi.	On N. face of I.R.C. culvert—200 ft. E. of mile post 653, St. Michel.....	655.73	163.96
Mcxxvii.	On E. wall of I.R.C. culvert—140 ft. W. of St. Michel station.....	656.72	167.27
Mcxxviii.	On W. wall of I.R.C. culvert—45 ft. E. of mile post 655, St. Michel.....	657.76	177.63
Mcxxix.	On E. abut. of I.R.C. bridge over Boyer River, St. Charles, P.Q.....	659.43	167.10
Mcxxx.	On N. wall of I.R.C. culvert—910 ft. E. of mile post 658, St. Charles, P.Q..	660.62	204.79
Mcxxxi.	On S. wall of I.R.C. culvert—471 ft. E. of mile post 660, " " ..	662.67	282.75
Mcxxxii.	On N. face of I.R.C. culvert—54 ft. W. of mile post 662, " " ..	664 80	322.24
Mcxxxiii.	On N. face of I.R.C. culvert—2035 ft. E. of mile post 665, " " ..	667.31	306.19
Mcxxxiv.	On S. face of I.R.C. culvert—1322 ft. W. of mile post 667, Harlaka, P.Q..	669.97	298.72
Mcxxxv.	On E. wall of I.R.C. culvert—100 ft. E. of station, Harlaka, P.Q.....	672.00	239.17
Clxvi.	On E. wall of I.R.C. overhead crossing—1 mile W. of station, Harlaka. P.Q.	672 98	167.27
Mcxxxvi.	On E. wall of I.R.C. overhead crossing of main street, St. Joseph de Lévis..	674.64	72.48
Lxxiii.	On E. abut. of I.R.C. overhead crossing of street to Dry Dock, St. Joseph de Lévis.....	674.75	57.79
Lxxiv.	On 2nd alter step W. wall of Dry Dock, St. Joseph de Lévis, P Q.....	674 97	15.63

DATUM—mean sea level of Atlantic Ocean.


SKELETON MAP
showing
Prominent bench marks between LEVIS & L'ISLET.
DATUM-mean sea level of Atlantic Ocean.
DORCHESTER
Quebec Central Ry
LEVIS
QUEBEC
I.R.C.
Harlakaw
St. Joseph
B.M.LXXIV. Elev. 15.63
B.M.LXXIII. Elev. 57.79
B.M.MCXXXVI. Elev. 72.48
B.M.CLXVI. Elev. 167.27
B.M.MCXXXV. Elev. 239.17
B.M.MCXXXIV. Elev. 298.72
B.M.MCXXXIII. Elev. 306.19
B.M.MCXXXII. Elev. 322.24
Ville Marie
St. Charles
B.M.MCXXXI. Elev. 282.75
B.M.MCXXX. Elev. 204.79
B.M.MCXXIX. Elev. 167.10
B.M.MCXXVIII. Elev. 177.63
B.M.MCXXVII. Elev. 167.27
B.M.MCXXVI. Elev. 163.96
St. Michel
St. Valier
B.M.MCXXV. Elev. 146.20
B.M.MCXXIV. Elev. 150.80
B.M.MCX. Elev. 128.54
St. Francois
B.M.MCXI. Elev. 127.42
B.M.MCXII. Elev. 127.67
St. Pierre
B.M.MCXIII. Elev. 90.70
Montmagny
B.M.MCXIV. Elev. 52.40
B.M.MCXV. Elev. 53.55
B.M.MCXVI. Elev. 53.95
B.M.MCXVII. Elev. 70.24
B.M.MCXVIII. Elev. 105.67
Cap St. Ignace
L'anse à Giles
B.M.MCXIX. Elev. 106.99
B.M.MCXX. Elev. 104.19
L'Islet
B.M.MCXXI. Elev. 91.47
L'ISLET
BELLECHASSE
MONTMAGNY
Intercolonial Railway
Island of Orleans
River St. Lawrence

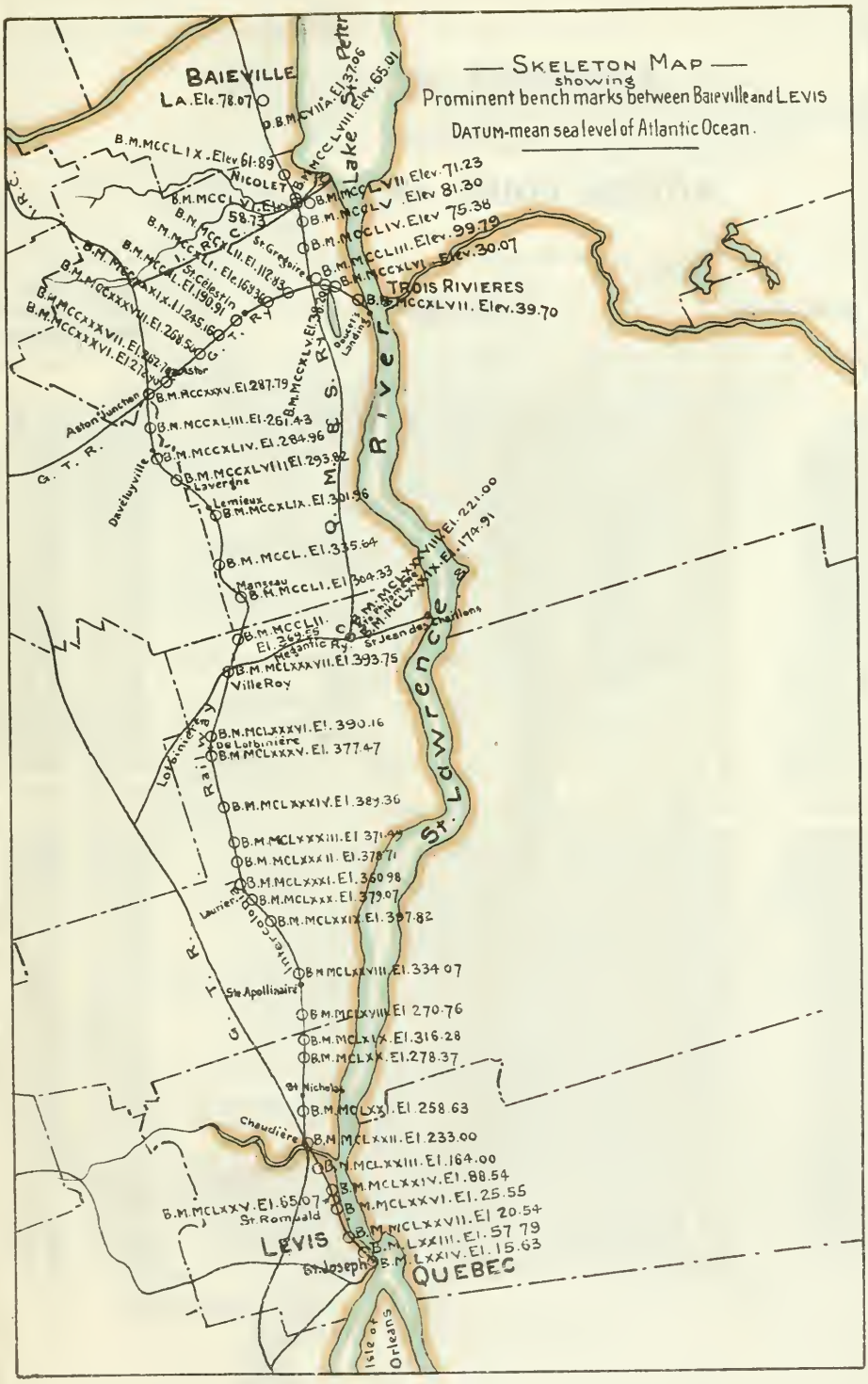
PROMINENT BENCH MARKS

BETWEEN

BAIEVILLE AND LEVIS

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
L.A.	On centre of E. wall of new R.C. church, Baieville, P.Q.	777.55	78.07
CVII.A.	On Edmond Leniere's new residence, La Baie du Febre, P.Q.	775.83	37.06
MCCLIX.	On N. wall of Q.M. & R. Ry. culvert, Nicolet, P.Q.	771.49	61.89
MCCLVIII.	On W. abut. of Q.M. & S. Ry. bridge over Nicolet River, Nicolet, P.Q.	769.89	65.01
MCCLVII.	On S.W. corner of new R.C. church, Nicolet, P.Q.	770.20	71.23
MCCLVI.	On E. abut. of Q.M. & S. Ry. overhead crossing of Notre-Dame, St. Nicolet	769.67	58.73
MCCLV.	On N. wall of Q.M. & S. Ry. concrete culvert, Nicolet, P.Q.	767.95	81.30
MCCLIV.	On E. abut. of Q.M. & S. Ry. bridge over brook, St. Grégoire, P.Q	765.55	75.38
MCCLIII.	On W. end of front of R.C. church, St. Grégoire, P.Q.	764 04	99.79
MCCXLV.	In S. wall of G.T.R. culvert, St. Grégoire, P.Q.	764.13	38.20
MCCXLVI.	On E. wall of G.T.R. bridge over Godfoy River, St. Grégoire, P.Q.	764.82	30.07
MCCXLVII.	On boulder E. side of G.T.Ry., Doucet's Landing, P.Q.	766.90	39.70
MCCXLII.	On S. wall of G.T.Ry. culvert, St. Grégoire, P.Q.	761.63	112.83
MCCXLI.	On boulder W. side of G.T.Ry., St. Célestin, P.Q.	759.88	168.36
MCCXL.	On S. wall of G.T.Ry. culvert at 2ième Rang Rd. crossing, St. Célestin	756.96	190.91
MCCXXXIX.	On N. wall of G.T.Ry. culvert—306 ft. N. of mile post 23, St. Célestin	755.49	245.16
MCCXXXVIII.	On S. wall of G.T.Ry. culvert—1230 ft. S. of mile post 21, "	753.22	268.50
MCCXXXVII.	On W. wall of G.T.Ry. culvert—1445 ft. N. of mile post 18, Aston, P.Q.	750.68	262.78
MCCXXXVI.	In N.W. face of G.T.Ry. culvert—237 ft. S. of mile post 18, " "	750.36	272.90
MCCXXXV.	On base of Shawenegan Elec. Pow. Co. pole, Aston Junction, P.Q.	748.46	287.79
MCCXLIII.	In W. end of concrete culvert—380 ft. E. of mile post 743, Daveluyville	745.56	261.43
MCCXLIV.	In W. abut. of I.R.C. bridge over Becancour River, Daveluyville, P.Q.	743.32	284.96
MCCXLVIII.	On boulder S. of I.R.C.—1600 ft. W. of mile post 738, Lavergne, P.Q.	740.97	293.82
MCCXLIX.	On boulder S. of I.R.C.—211 ft. W. of mile post 733, Lemieux, P.Q.	736.08	301.96
MCCL.	On boulder N. of I.R.C.—2535 ft. E. of mile post 730, Manseau, P.Q.	732.19	335.64
MCCLI.	In W. abut. of I.R.C. bridge—over Duchene River, Manseau, P.Q.	728.86	304.33
MCCLII.	On rock S. of I.R.C.—2193 ft. E. of mile post 723, Villeroy, P.Q.	725.26	369.55
MCLXXXVII.	On N. end of I.R.C. agent's residence, Villeroy, P.Q.	722.77	393.75
MCLXXXVIII.	On N. wall of R.C. church, Ste. Philoméne, P.Q.	733.30	221.00
MCLXXXIX.	On S. abut. of L. & M. Ry. bridge over Rivière aux Ormes, Ste. Philoméne	733.97	174.91
MCLXXXVI.	On W. wall of I.R.C. bridge over Edmond River, De Lotbinière, P.Q.	717.53	390.16
MCLXXXV.	On W. wall of I.R.C. bridge over Duchene River, " "	716.50	377.47
MCLXXXIV.	On E. abut of I.R.C. bridge over Henri River, De Lotbinière, P.Q.	712.53	389.36
MCLXXXIII.	On W. wall of I.R.C. culvert—1685 ft. E. of mile post 707, Laurier, P.Q.	709.36	371.49
MCLXXXII.	In E. wall of I.R.C. culvert—1650 ft. W. of mile post 705, " "	707.99	378.71
MCLXXXI.	In W. wall of I.R.C. culvert—2355 ft. E. of mile post 704 " "	706.28	360.98
MCLXXX.	In W. wall of I.R.C. culvert—1180 ft. W. of mile post 702, " "	704.92	379.07
MCLXXIX.	On boulder N. of I.R.C.—237 ft. E. of mile post 700, Laurier, P.Q.	702.60	397.82
MCLXXVIII.	On S. wall of I.R.C. culvert—960 ft. E. of mile post 696, Ste. Apollinaire, P.Q.	698.50	334.07
MCLXVIII.	On rock S. of I.R.C.—846 ft. E. of mile post 693, Ste. Apollinaire, P.Q.	695.52	270.76
MCLXIX.	In solid rock S. of I.R.C.—1955 ft. E. of mile post 691, St. Nicolas, P.Q.	693.31	316.28
MCLXX.	In W. wall of I.R.C. bridge over brook—1395 ft. E. of mile post 690, St. Nicolas, P.Q.	692.42	278.37
MCLXXI.	In W. wall of I.R.C. bridge over brook—2120 ft. W. of mile post 685, St. Nicolas, P.Q.	688.09	258.63
MCLXXII.	On W. abut. of I.R.C. bridge over Chaudière River, Chaudière, P.Q.	685.61	233.00
MCLXXIII.	On E. wall of I.R.C. culvert—620 ft. W. of Chaudière Valley Ry. crossing	683.49	164.00
MCLXXIV.	On W. wall of I.R.C. culvert—760 ft. E. of mile post 679, St. Romuald, P.Q.	681.50	88.54
MCLXXV.	On W. abut. of I.R.C. bridge over Etchemin River, St. Romuald, P.Q.	680.84	65.07
MCLXXVI.	On E. abut. of I.R.C. bridge over Rivière à la Scie, St. Romuald, P.Q.	680.05	25.55
MCLXXVII.	On N. side of main entrance to Victoria Hotel, Pointe Lévis, P.Q.	677.54	20.54
LXXIII.	On E. abut. of I.R.C. overhead crossing of street to Dry Dock, St. Joseph	674.75	57.79
LXXIV.	On 2nd alter step W. wall of Dry Dock, St. Joseph de Lévis, P.Q.	674.64	15.63

DATUM—mean sea level of Atlantic Ocean.



SKELETON MAP
showing
Prominent bench marks between Baieville and LEVIS
DATUM-mean sea level of Atlantic Ocean.
BAIEVILLE
LA. Ele. 78.07
B.M.MCCLIX. Elev. 61.89
NICOLET
B.M.MCCLVI. Elev. 58.73
B.M.MCCLVII. Elev. 71.23
B.M.MCCLV. Elev. 81.30
B.M.MCCLIV. Elev. 75.38
B.M.MCCLIII. Elev. 99.79
B.M.MCCXLVI. Elev. 30.07
TROIS RIVIERES
B.M.MCCXLVII. Elev. 39.70
St. Gregoire
St. Célestin
B.M.MCCXXXVII. El. 268.50
B.M.MCCXXXVI. El. 272.90
B.M.MCCXXXV. El. 287.79
Aston Junction
B.M.MCCXLIII. El. 261.43
B.M.MCCXLIV. El. 284.96
B.M.MCCXLVIII. El. 293.82
Lavergne
Lemieux
B.M.MCCXLIX. El. 301.96
B.M.MCCL. El. 335.64
Manseau
B.M.MCCLI. El. 304.33
B.M.MCCLII. El. 369.55
Megantic Ry.
St. Jean des Chaillons
B.M.MCLXXXVII. El. 393.75
Ville Roy
B.M.MCLXXXVI. El. 390.16
De Lotbinière
B.M.MCLXXXV. El. 377.47
B.M.MCLXXXIV. El. 389.36
B.M.MCLXXXIII. El. 371.49
B.M.MCLXXXII. El. 378.71
B.M.MCLXXXI. El. 360.98
B.M.MCLXXX. El. 379.07
B.M.MCLXXIX. El. 397.82
B.M.MCLXXVIII. El. 334.07
Ste. Apollinaire
B.M.MCLXVIII. El. 270.76
B.M.MCLXIX. El. 316.28
B.M.MCLXX. El. 278.37
St. Nicholas
B.M.MCLXXI. El. 258.63
Chaudière
B.M.MCLXXII. El. 233.00
B.M.MCLXXIII. El. 164.00
B.M.MCLXXIV. El. 88.54
B.M.MCLXXV. El. 65.07
B.M.MCLXXVI. El. 25.55
St. Romuald
B.M.MCLXXVII. El. 20.54
B.M.LXXIII. El. 57.79
B.M.LXXIV. El. 15.63
St. Joseph
LEVIS
QUEBEC
Isle of Orleans
Lake St. Peter
Q. M. & S. Ry.
St. Lawrence River
G. T. R.
Intercolonial Railway
Lotbinière
Davelayville
Aston Junction
Doucet's Landing

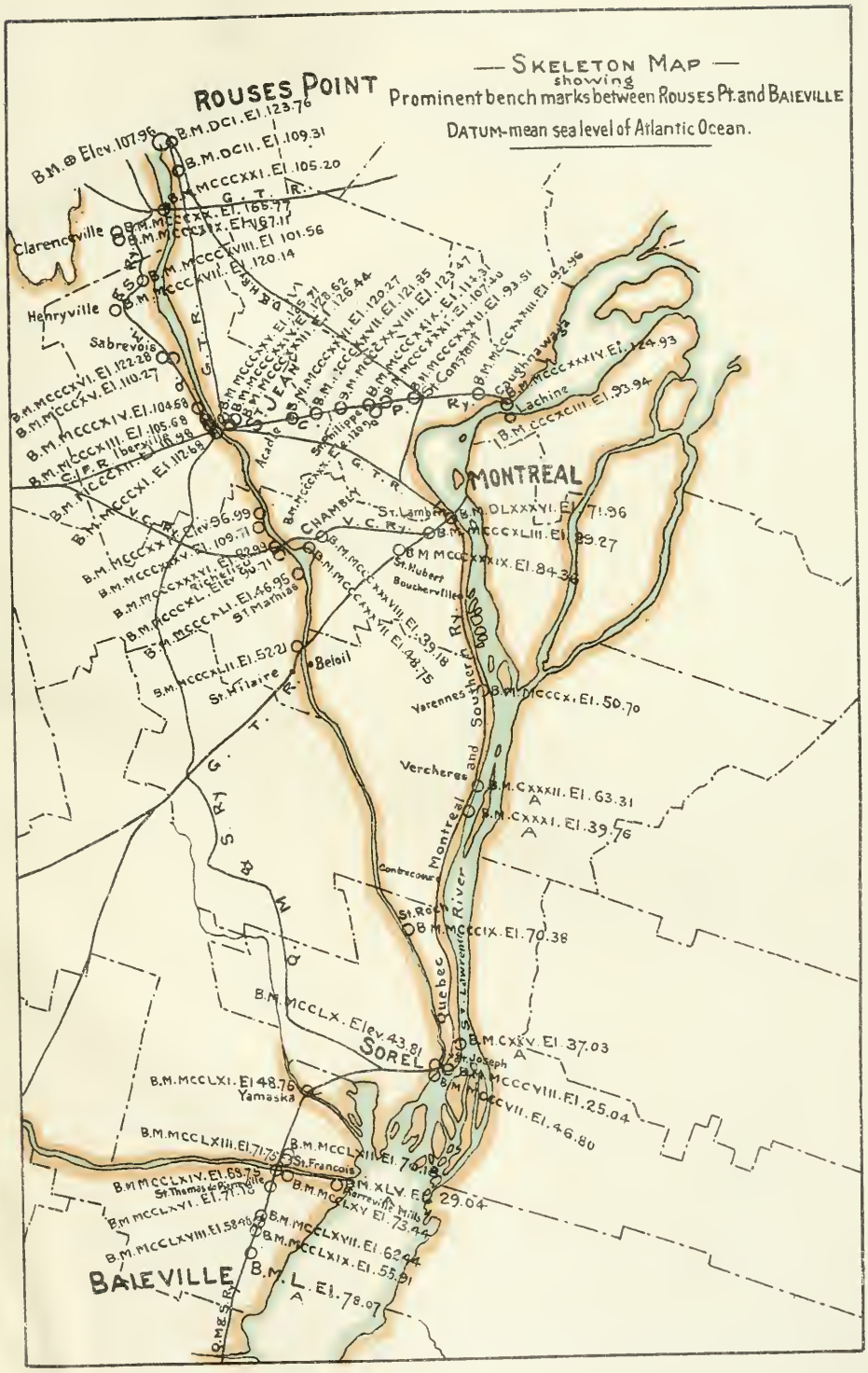
PROMINENT BENCH MARKS

BETWEEN

ROUSES POINT AND BAIEVILLE

Bench Marks	Descriptions	Miles from Halifax	Feet above Datum
O.	Cut into top of stone plinth N.E. corner of Chapman block, Rouses Point, N.Y.	898.78	107.96
Dci.	On N.E. corner D. & H. Ry. station, Rouses Point, N.Y.	898.28	123.76
Dcii.	In W. face of S. abutment of G.T.R. culvert, Lacolle, P.Q.	895.80	109.31
Mcccxxi.	E. face of E. abut. of G.T.R. bridge over Richelieu River, Noyan, P.Q.	892.38	105.20
Mcccxx.	On N.W. corner of R.C. church, Clarenceville, P.Q.	888.90	165.77
Mcccxix.	On S.W. corner of Methodist church, Clarenceville, P.Q.	889.13	167.11
Mcccxviii.	In N. abut. of Q.M. & S. Ry. bridge over South River, Henryville, P.Q.	884.59	101.56
Mcccxvii.	On S. side of main entrance to R.C. church, Henryville, Que.	881.88	120.14
Mcccxvi.	In S.E. corner of R.C. church, Sabrevois, P.Q.	877.59	122.28
Mcccxv.	In S. abutment of Q.M. & S. Ry. bridge over brook, Sabrevois, P.Q.	876.37	110.27
Mcccxiv.	W. side of N. abut. of Q.M. & S. railway bridge over Barbotte River	872.21	104.68
Mcccxiii.	Under E. end window front of Post Office, Iberville, P.Q.	869.44	105.68
Mcccxii.	On S. end of stone front of R.C. church, " "	869.24	111.98
Mcccxi.	W. abutment of C.P.R. overhead crossing of main street, Iberville, P.Q.	869.07	112.68
Mcccxxiii.	On S.E. corner of Court House and Jail building, St. Johns, P.Q.	869.92	126.44
Mcccxxiv.	On S.W. corner front of R.C. church, St. Johns, Que.	870.03	128.62
Mcccxxv.	On S.W. wall of Post Office, St. Johns, P.Q.	870.09	125.71
Mcccxxvi.	On E. abut. of C.P.R. bridge over Little Montreal River, Acadie, P.Q.	874.65	120.27
Mcccxxvii.	On S. abut. of C.P.R. bridge over brook, Acadie, P.Q.	876.37	121.85
Mcccxxviii.	On N. face of E. wall of C.P.R. culvert, St. Philippe, P.Q.	878.61	123.47
Mcccxxix.	On E. abut. of C.P.R. bridge over St. Lambert River, St. Philippe, P.Q.	880.70	114.31
Mcccxxx.	On N.W. side of main entrance to R.C. church, St. Philippe, P.Q.	881.21	120.90
Mcccxxxi.	On W. abut. of C.P.R. bridge over brook, St. Philippe, P.Q.	882.02	107.40
Mcccxxxii.	On E. abut. of C.P.R. bridge over La Tortue River, St. Constant, P.Q.	884.21	93.51
Mcccxxxiii.	On E. end of S. face of C.P.R. concrete culvert, St. Constant, P.Q.	888.79	92.96
Mcccxxxiv.	On E. face of S. abut. of C.P.R. bridge over St. Lawrence River, Caughnawaga, P.Q.	891.32	124.93
Cccxciii.	On S.W. face of 1st pier of C.P.R. bridge over St. Lawrence River, Lachine, P.Q.	892.07	93.94
Mcccxxii.	On N.W. corner of Ed. Lareau's barn, Richelieu, P.Q.	862.41	96.99
Mcccxxxv.	On N.W. corner of Phil. Ostigny's brick house, Richelieu, P.Q.	861.55	109.71
Mcccxxxvi.	On E. abut. of V.C.Ry. bridge over Richelieu River, Richelieu, P.Q.	859.26	82.99
Mcccxxxvii.	On S. side of main entrance of R.C. church, Chambly Basin, P.Q.	857.77	48.75
Mcccxxxviii.	On E. abut. of V.C.Ry. bridge over Montreal River, Chambly Basin, P.Q.	856.39	39.18
Mcccxxxix.	On S.W. corner of R.C. church, St. Hubert, P.Q.	850.52	84.36
Mcccxl.	On S. side of main entrance of R.C. church, Richelieu, P.Q.	859.72	90.71
Mcccxli.	On S. side of S. entrance of R.C. church, St. Mathias, P.Q.	862.41	46.95
Mcccxlii.	On E. abut. of G.T.Ry. overhead crossing of main street, St. Hilaire, P.Q.	868.57	52.21
Mcccxliii.	On W. end of S. face of G.T.Ry. culvert, St. Lambert, P.Q.	847.34	89.27
Dlxxxvi.	On W. abut. of G.T.Ry. overhead crossing, Victoria St., St. Lambert, P.Q.	845.28	71.96
Mcccx.	On stone support of oil tank near Q.M. & S. Ry. station, Varennes, P.Q.	831.58	50.70
Cxxxii.a.	On E. end of new stone front of R.C. church, Vercheres, P.Q.	824.36	63.31
Cxxxi.a.	On E. end of new residence of Ludovicus Gaudet, Vercheres, P.Q.	822.59	39.76
Mcccix.	On S.E. corner of R.C. church, St. Roch, P.Q.	813.74	70.38
Cxxv.a.	On E. end of Michel Peloquin new house, St. Joseph de Sorel, P.Q.	803.39	37.03
Mcccviii.	In concrete post of small work shed, Gov't Yard, St. Joseph de Sorel, P.Q.	802.37	25.04
Mcccvii.	On N.W. side of main entrance to Post Office, Sorel, P.Q.	801.25	46.80
Mcclx.	On E. abut. of Q.M. & S. Ry. bridge over Richelieu River, Sorel, P.Q.	801.01	43.81
Mcclxi.	On W. abut. of Q.M. & S. Ry. bridge over Yamaska River, Yamaska	790.76	48.76
Mcclxii.	On N. side of priest's residence, St. François du Lac, P.Q.	785.00	70.18
Mcclxiii.	On S. end corner of R.C. church, St. François du Lac, P.Q.	785.00	71.75
Mcclxiv.	On E. abut. of Q.M. & S. Ry. bridge over St. François River, Pierreville	784.20	68.75
Mcclxv.	On rear wall of Abenakis Indians' R.C. church, St. Thomas de Pierreville	784.96	73.44
Mcclxvi.	On S. end of Q.M. & S. Ry. culvert, St. Thomas de Pierreville, P.Q.	783.30	71.18
Mcclxvii.	On S. end of Q.M. & S. Ry. concrete culvert, La Baie du Febvre	781.54	62.44
mcclxviii	On S. end of Q.M & S. Ry. arched culvert, La Baie du Febvre, P.Q.	780.89	58.48
Mcclxix.	On S. end of Q.M. & S. Ry. arched culvert, La Baie du Febvre, P.Q.	780.14	55.91
Xlv.a.	In rear wall of priest's house, Pierreville Mills, P.Q.	788.75	29.04
L.a.	On centre of E. wall of new R.C. church, Baieville, P.Q.	777.55	78.07

DATUM—mean sea level of Atlantic Ocean.


— SKELETON MAP —
showing
Prominent bench marks between Rouses Pt. and Baieville
DATUM-mean sea level of Atlantic Ocean.
ROUSES POINT
B.M. DCI. El. 123.76
B.M. ⊕ Elev. 107.96
B.M. DCII. El. 109.31
B.M. MCCCXXI. El. 105.20
G. T. R.
B.M. MCCCXX. El. 166.77
B.M. MCCCXIX. El. 187.11
B.M. MCCCXVIII. El. 101.56
B.M. MCCCXVII. El. 120.14
Clarenceville
Henryville
Sabrevois
B.M. MCCCXVI. El. 122.28
B.M. MCCCXV. El. 110.27
B.M. MCCCXIV. El. 104.68
B.M. MCCCXIII. El. 105.68
B.M. MCCCXII. El. 112.68
B.M. MCCCXI. El. 112.68
Iberville
C. P. R.
V. C. R.
Acadie
Chambly
St. Lambert
B.M. OLXXXVI. El. 71.96
B.M. MCCCXLIII. El. 89.27
B.M. MCCCXXXIX. El. 84.34
St. Hubert
Boucherville
Varennes
B.M. DCCCX. El. 50.70
Vercheres
B.M. CXXXII. El. 63.31
B.M. CXXXI. El. 39.76
Contrecoeur
St. Roch
B.M. MCCCIX. El. 70.38
Quebec
St. Lawrence River
Montreal and Southern Ry.
MONTREAL
Longueuil
Laprairie
Caughnawaga
Lachine
B.M. MCCCXXXIV. El. 124.93
B.M. CCCXCIII. El. 93.94
B.M. MCCCXXXII. El. 92.96
B.M. MCCCXXXI. El. 107.40
B.M. MCCCXXIX. El. 114.31
B.M. MCCCXXVIII. El. 121.35
B.M. MCCCXXVII. El. 120.27
B.M. MCCCXVI. El. 123.47
B.M. MCCCXV. El. 126.44
B.M. MCCCXIV. El. 128.62
B.M. MCCCXIII. El. 129.71
B.M. MCCCXII. El. 129.90
B.M. MCCCXI. El. 129.90
B.M. MCCCX. El. 129.90
B.M. MCCCXXXVII. El. 39.18
B.M. MCCCXXXVII. El. 48.75
B.M. MCCCXXXVI. El. 96.99
B.M. MCCCXXXV. El. 109.71
B.M. MCCCXXXIV. El. 97.93
B.M. MCCCXXXIII. El. 90.71
B.M. MCCCXXXII. El. 46.95
B.M. MCCCXLI. El. 46.95
B.M. MCCCXLII. El. 52.21
St. Mathias
St. Hilaire
Belœil
G. T. R.
S. R. R.
B.M. MCCLX. Elev. 43.81
SOREL
B.M. CXXV. El. 37.03
St. Joseph
B.M. MCCCVIII. El. 25.04
B.M. MCCCVII. El. 46.80
B.M. MCCLXI. El. 48.76
Yamaska
B.M. MCCLXIII. El. 71.73
B.M. MCCLXII. El. 76.18
St. Francois
B.M. MCCLXIV. El. 68.73
St. Thomas de Pierreville
B.M. MCCLXVI. El. 71.18
B.M. XLV. El. 29.04
Barrenville Mills
B.M. MCCLXV. El. 73.44
B.M. MCCLXVIII. El. 58.98
B.M. MCCLXVII. El. 62.44
B.M. MCCLXIX. El. 55.81
BAIEVILLE
B.M. L. El. 78.07
Q. M. & S. R.